

# The Boston Medical and Surgical Journal

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## The Massachusetts Medical Society.

### PAPERS AND DISCUSSIONS OF THE ANNUAL MEETING OF THE SOCIETY, JUNE 13, 1917.

#### THE BEARINGS OF INDUSTRY ON MEDICAL PRACTICE.

BY DAVID L. EDSALL, M.D., BOSTON.

NOTE.—Dr. Edsall had some statistics and spoke with these as a basis, summarizing the paper of Dr. Wade S. Wright on The Industrial Clinic of the Massachusetts General Hospital, Dr. Wright being absent and occupied with preparations for entering military service.

#### (ABSTRACT.)

BEFORE entering upon the practice of industrial medicine a physician must have special training in this work such as Dr. Wright has had, for to appreciate the needs of this special department previous instruction is necessary. The first thing to emphasize is to get into the habit of looking for the source of the hazard rather than to expect to get it from the history of the individual case. Since March, 1916, I have been studying this phase of the subject. At first there was difficulty in collecting statistics. A social service worker at the Massachusetts General Hospital was appointed to gather these statistics but this experiment failed because few cases reached her hands. Then physicians were asked for statistics, but few of them understood

what the hazards were and little was accomplished. Finally, a social worker was stationed at the entrance to the out-patient department of the Hospital to ask for industry and trade processes, and during the last year she was able to interview 5100 cases of this sort as against about 600 in the previous six months under the former system. These figures showed that in 488 cases the occupation was the dominating factor. An intensive study of the lead poisoning cases was made. There were available for study 146 cases in the previous five years and 148 cases during the year after this study was begun. In every case the urine and feces were examined, and both showed the presence of lead. These cases showed a "lead hazard" and presented the following symptoms: colic 99; constipation 77, diarrhea 60, pain in extremities 30, pain about condyles, weakness of wrist, wrist drop in only five cases and lead line in 78 cases. The lead spots on the gums should always be looked for under a good light and with the corner of a piece of white paper under the gum. Among the cases of lead poisoning at the Massachusetts General Hospital was that of a boy who contracted it from cases of stockings which were labeled in gold paint. This paint contained from one-half to one per cent. of lead. There was a distinct lead hazard in 558 cases, most of whom were painters.

There are many cases of industrial diseases at the Massachusetts General Hospital and they should be studied from the technical point of view. The trade processes in which the patients are engaged should be investigated. The surgical side is also important and demands recognition and study.

## THE ACTIVITIES OF A LABOR DEPARTMENT.

By EDWIN MULREADY, ROCKLAND, MASS.,  
*Commissioner of Labor, Commonwealth of Massachusetts.*

If one could appreciate the great industrial and social changes now taking place in every line of human endeavor, he would at once realize why it is necessary and desirable to have a State Labor Department. This is true in a special manner of an industrial Commonwealth like our own, where we have large communities entirely dependent upon factory and mill population, and where the concern of the mill operatives becomes the concern of all.

Intelligent employers of labor have come to realize, as never before, that the most valuable asset of the establishment is the well-paid, contented workman, laboring under conditions designed to conserve the health and general well-being of the employees. It is because all employers do not appreciate this fact that the State is obliged to enact laws which will compel certain individuals to adopt a system, which has, time and again, demonstrated its usefulness. It is well to be reminded that laws are made, not for the majority of our citizenship, but really to compel obedience by the minority. "Obedience to law is liberty," but some people have not yet received the gift of vision to recognize the truth of this principle, and hence obedience must be enforced. The so-called labor laws are no exception to this rule.

All laws relating to labor and the employment of labor are within the jurisdiction of the Labor Department of Massachusetts. Such laws, broad in their scope, must necessarily be made more inclusive in detail to meet the ever-changing industrial life of the community. If the worker is obliged to spend 50% of his working hours working under conditions which his employer has either created or allowed to exist, and which make for disease and premature death, then it is the business of the Commonwealth to recognize and improve such conditions. The world cannot stop in its march of progress, dangerous occupations cannot be entirely eliminated; yet, while we cannot remove all occupational hazards, we may, by a little care, reduce to the minimum these industrial dangers. This suggestion is not made in a spirit of philanthropy, but really in the interest of fair play, justice and sound business policy. It has been said that the individual worker assumes the risk when he enters the occupation. A moment's thought, however, will convince us that this is not a fair assumption. Indeed, the utter helplessness of the worker, so far as controlling the special hazards of his occupation is concerned, when once understood, awakens the interest of any right-thinking person. A human being, who appreciates the fact that he is but one fifteen-thousandth part of the plant in which he labors, quickly reaches the conclusion that it is not for him to "reason why," but that his part is to "do or die."

When the Labor Department receives thousands of complaints relative to working conditions, it is seldom found that there is not attached to the complaint a request—"please don't mention my name, for it will be the price of my job if it is found that I complained," etc. Do not misunderstand me; this may be in many cases just the "state of mind," but, nevertheless, we know that such an evil exists. We are not inclined to criticize too severely, for we have all seen great business establishments grow like mushrooms in the night; and the multitude of perplexing problems facing the management on every side, it is no small wonder that the "human side" of industry has often been neglected. In self-defense, the workers, through their representatives, have sought a remedy through legislation, and while in many instances the wisest remedy has not resulted, a constant struggle has been kept up. In this connection I desire to acknowledge, with sincere gratitude, the great contribution which has come from physicians in this effort for better working and living conditions. Indeed, the invitation to attend your memorable meeting of today was accepted without hesitation, because I have known of your interest in this direction.

The particular duty of a State is to protect the weak and those who are not in a position to protect themselves. It is a source of congratulation to every citizen in this old Bay State to know that when the Federal Government undertook to protect the children of the nation by the so-called "Child Labor Law," the Congress at Washington took the Massachusetts Child Labor Law for its model, and that next September, when this law becomes operative, those who observe the much-abused Massachusetts Child Labor Law will thereby observe all the essential provisions of the Federal Child Labor Law.

Massachusetts has always led in the protection which the law affords women who are obliged to labor. These laws have been the subject for severe criticism, and several cases have been brought in our courts to determine the exact status of women in the industrial field. Courts everywhere have uniformly upheld the theory that women should be protected by law from all kinds of overwork. The Supreme Court of the State of Illinois has used this language in defining the position of women in industry:

"It is known to all men (and what we know as men we cannot profess to be ignorant of as judges) that women's physical structure and the performance of maternal functions places her at a great disadvantage in the battle of life; that while a man can work for more than ten hours a day without injury to himself, a woman, especially when the burdens of motherhood are upon her, cannot; that while a man can work standing upon his feet for more than ten hours a day, day after day, without injury to himself, a woman cannot; and that to require a

woman to stand upon her feet for more than ten hours in any one day and perform severe manual labor while thus standing, day after day, has the effect to impair her health; and that as weakly and sickly women cannot be the mothers of vigorous children, it is of the greatest importance to the public that the State take such measures as may be necessary to protect its women from the consequence induced by long, continuous manual labor in those occupations which tend to break them down physically. It would, therefore, seem obvious that legislation which limits the number of hours which women shall be permitted to work to ten hours in a single day in such employments as are carried on in mechanical establishments, factories and laundries would tend to preserve the health of women and insure the production of vigorous offspring by them, and would directly conduce to the health, morals and general welfare of the public."

If such laws have been upheld under ordinary conditions, what shall we say of their value under the greater strain which has now come to the women and children!

We are at war with the greatest fighting machine the world has ever seen. Our young men, and perhaps our older men as well, will be called upon to follow the flag, and unfortunately no one is in a position to predict the time of their return to normal conditions. Last week we had the opportunity of meeting the representatives of the Canadian Government, having charge of the military hospitals, and we were amazed to find that in the nine Provinces of Canada, 94 such institutions had been found necessary. As we listened to the story we wondered whether the experience of Canada might not be duplicated in Massachusetts, and whether our people fairly appreciate the situation confronting them at the present time. In addition to this thought, it cannot be denied that with a million men in the field, there must necessarily come an enormous readjustment of labor and labor conditions. The United States must win this war, and as one means many persons have advised the entrance of women and children into occupations in which they were heretofore strangers.

The new law, which has given the Governor of Massachusetts such tremendous power, contains a provision, which calls for the organization of a Commission, consisting of two representatives of wage-earners and two representative manufacturers sitting with the Commissioner of Labor as Chairman, to determine all emergency work. While we may modify in some respects the rules and laws which have been enacted for the protection of women and children, we shall not, I trust, tear down the standards which have been raised, and which have stood for a better American womanhood and childhood,—the two great assets of a free Republic.

The statements which have been made are an indication of the place which the activities of a Labor Department should occupy in a progressive, industrial State; and now, in no spirit of egotism, I desire to call your attention to the work of the Massachusetts Labor Department for the year 1916. It has been suggested that we should have an industrial census, taking an inventory of our different industrial parts. In Massachusetts we have 70 large plants manufacturing munitions of war, employing over 57,000 employees, two-thirds of whom are women and children. The proper inspection of these plants, with their ever-changing problems, would constitute a work sufficient for all our inspection force. We have not confined our efforts, however, to this work, but in the year 1916, 30,617 industrial establishments were inspected; 11,212 reinspections were made; 41,829 being the total of inspections and reinspections; 12,010 orders were issued to correct conditions existing contrary to law; 10,475 of these orders were complied with; 3,284 orders pending at the close of the year; 189 cases of industrial diseases were reported by physicians; 3,028 complaints were received; 3,430 orders were issued in relation to the hours of labor by women and children; 557 in relation to Sunday employment; 2,132 in relation to educational and employment certificates for children; 735 in relation to dangerous machinery; 3,344 in relation to improper toilet facilities; 1,078 in relation to medical and surgical chests; 323 in relation to insufficient ventilation, etc.

The physicians of the State have responded to our request for reports on occupational diseases in a splendid manner. It may not be fair to say that there are more occupational diseases than ever before, but it is a fact that more cases are being reported. In the year 1916, 182 reports were received, while for the five months up to May 31st of the present year, 151 reports had come in. Take the disease of anthrax alone: we are told that in the Massachusetts General Hospital in 23 years only 36 cases were reported, while in the year 1916 we had 27 cases—4 fatal; and for the past five months we have reports on 24 cases—3 deaths. I would not weary you with statistics, but believe that the figures given are an indication of the great amount of work which was absolutely necessary in order that better conditions might exist in industry.

The privilege of speaking at your meeting is fully appreciated, for by it there was created an opportunity to call your attention to the activities of a Labor Department, but if the matter is allowed to rest there, I feel certain that my intrusion on your valuable time will not be justified. May we not expect that as a result of this visit you may reflect on the possibilities of still greater cooperation with the Labor Department; that we may, by such cooperation succeed in the formulation of a plan by which we may together aid in the betterment of the laboring

population, and thus produce a higher and better grade of American citizenship in this great industrial Commonwealth!

#### THE ADJUSTMENT OF PHYSICAL DEFECTIVES TO EMPLOYMENT.

BY W. IRVING CLARK, M.D., WORCESTER, MASS.

THE awakening interest in the health of the workingman, which was just beginning to show in the United States five years ago, has been stirred to unwonted activity by the war.

#### INDUSTRIAL EXPANSION.

The lack of immigration, and finally the prospect of losing a large proportion of young men through draft, has brought home to the employer the tremendous importance of the workingman as the basis of his business. For some years employers have been studying the rapid turnover of labor in the factories, and the endless waste which it involved,—an economic waste not only to the factory but to the workmen as well. Efforts to meet this have become more and more organized. Employment departments have been established and every effort made to select the workman for the work to which he is best trained, and at which he is most likely to remain. It was almost immediately seen that, although some men might be well adapted, through training, for certain work, on account of their physical condition they are not able to stand the stress and strain, and therefore valuable members of the community were soon worn out, and obliged to adopt other lines of work, for which they were not well trained, and from which they derived only a small proportion of wages which were due them. In order to meet this difficulty, medical supervision of employees was adopted by many large factories throughout the country. It was at once found that the only way the physical condition of the employees could be ascertained was by physical examinations. These examinations were in some cases made after the employees had been hired, and in others upon applicants for positions. The examinations revealed several interesting facts: First, that the workingman, unless influenced by some labor organization, did not object to physical examinations, but rather appreciated their value to himself. Second, that many men applied for positions in a factory for which they were physically unfit. Third, that the majority of applicants had numerous defects of a more or less serious nature, which were amenable to treatment, or which could be improved by selecting the work for which the applicant was best physically fitted. It was also found that hard work had a tendency to reduce the applicant's ability to fill a position, because of his physical defects, after the age of forty-five. The employer was therefore confronted with the problem of: (1) whether to reject men who were

totally unfitted for the work, or to try to adapt the work to the man's physical condition so as to make use of him; (2) whether something could not be done to prevent beginning defects from becoming more pronounced, and finally becoming so severe that the man's occupation would have to be changed; (3) whether a great many of the defects which were found in older men were not due to the neglect which their physical condition had received during their previous work. It falls to the doctor to meet and answer these problems. As a result of work extending over about five years, the industrial physicians of the United States have gradually worked out the answer. Briefly to outline this answer, I am submitting this communication:

#### GENERAL PLAN OF MEDICAL SUPERVISION.

The factory equips one or more hospitals, in charge of nurses, and places in charge of the department a doctor, who usually has one or more assistants, depending on the size of the factory. An employment department examines each applicant for his fitness to fulfill a given position, just as the doctor examines a man physically. After the applicant has been approved by the employment department, he is sent to the health department for a physical examination. This examination is made with about the same thoroughness that an army recruit receives. All defects are noted and summarized, and the doctor then decides whether the applicant is fitted for the position to which the employment department has assigned him. If not, the matter is taken up with the employment department, and some suitable work is found for the man. Thus the employment department is often obliged to adjust the man's work to his physical condition, while in other cases the doctor is obliged to adjust the man's physical condition to the work. This latter phase will be discussed more fully later. After the employee has been assigned to work, his physical examination card is filed, and he is privileged to use the shop hospital for every accident and every attack of sickness which he has while he is working. Owing to the Workmen's Compensation Act, prompt reporting at the hospital for accident is enforced by the foremen, and reporting for sickness is simply advised, but the employee is quick to appreciate the advantage of a doctor at his elbow, and is constantly applying for help in trivial and severe sickness. In this way a constant record of the man's physical condition is maintained, each visit to the hospital for sickness or accident being carefully noted on the employee's record, so that any change in his physical condition can be rapidly noted. It will thus be seen that defects are found, first during the physical examination of the applicant for work, and later, as they arise as a result of sickness or accident.

Defects may be divided into three classes: first, defects which are general in character; second, defects due to accident; and, third, de-

fects due to previous sickness. General defects are usually the result of a subnormal condition. The employee appears as a poorly nourished individual, usually anemic. The type of actual defects from which he suffers are hypertrophic tonsils, a deviation of the septum, spinal curvature, relaxed inguinal rings, and possibly a cardiac murmur. Men of this type require careful medical supervision. It is usually found that their home living conditions are poor, that they are getting an insufficient amount of sleep, and that the type of food which they are using is incorrect. Such defectives are employed in considerable numbers in all factories. The doctor's effort in these cases is not only to place the individual at work which is not too severe for his faulty development, but also so to guide his methods of life that the numerous defects may be, to a certain degree, overcome, or at least improved. It is obvious that men of this type are unfitted for heavy work; by heavy work is meant general laboring, work in departments which require heavy lifting, and departments where the ventilation is poor or where there is much dust. These employees are the pre-tubercular type, and it is well to examine their lungs at stated intervals. The second broad type—those whose defects are due to previous accidents—may be divided into two classes: those due to a recent accident, from which they have just recovered; and those due to an accident occurring one or more years previous; the latter class are, of course, deformities. The placing of the employee defective from a recent accident requires considerable ingenuity. The doctor always endeavors to place him at work which is as nearly as possible that which he was doing at the time he was injured, principally because this is the easiest work for him to do. It is surprising how rapidly men will resume their original work with comparatively severe injuries of not more than two fingers of one hand, provided these fingers are adequately protected. The great majority of injuries occurring in factory work are to the fingers, and much of the lost time is due to fear on the part of the employee that he will further injure the affected finger, either by the work or by striking it against some part of the machine. Adequate protection can be procured by the use of the Brant splint, or the tin cross-piece suggested by Dr. Manning, of the Government printing-office. The machinist is more or less inventive, and can often devise some method by which he can handle his work for himself, if he is assured by the doctor that no injury to himself will result thereby. At Norton Company we have repeatedly had cases of employees who, after sustaining a traumatic amputation of part of a finger, have returned to work the next day, and we have also had men continue working with a broken finger, after this had been splinted with a Marsee finger splint. When it is impossible for a man to return to his original work, work as closely approximating it as

possible should be found; and if, as in the case of a strained back, it is impossible for the man to do the heavy lifting required, the nearest available helper should be instructed to assist him, while some apparatus should be arranged by which the work may be put upon his machine by mechanical means.

*Defects from a Previous Accident.* These defects will probably be most important during and after the present war, but many of them are appearing daily at factories at the present time. Such defectives are one-eyed men, one-armed men, one-legged men, and men suffering from similar deformities. The problem of placing defectives of this type has been made additionally difficult by the Workmen's Compensation Act; thus the factory realizes in hiring a one-eyed man that in event of his losing his eye, it or the insurance company will be responsible for total blindness. In the same way, a man with one arm, receiving a serious injury to that one arm, becomes a dependent upon insurance for a long period of time. The result is that, except where the employee has lost his eye or some other member while in the employ of the factory, it is extremely difficult for such defectives to obtain work, even though they are competent workers. This seems a grave injustice to the employee, but the injustice would not be present if the law were made more reasonable for the employer. The one-eyed worker may be placed in any department with perfect safety if he consents to wear a goggle of the dust-safe type. This absolutely protects the eye; the only difficulty being that the employee frequently fails to carry out his part of the contract and wear the goggle while working. If the responsibility of the factory for injury to the remaining eye ceased after a pair of this type of goggles had been issued to the employee, one-eyed men would find little difficulty in obtaining employment. One-armed men are usually very dexterous, and are frequently capable of doing good work in certain parts of a machine shop. I have been much impressed by the possibilities of artificial arms now on the market, and I feel that if, in the future, factories are obliged to take one-armed men, that excellent work can be obtained from these men if in some way artificial arms can be procured for them and they can be taught to use them. One-legged men are not much handicapped in most departments, provided they have a well-fitted artificial limb, and ordinary common sense is used in the selection of their work. The same is true of old fractures and flat-feet. In cases of this type, proper instruction and supports will almost always allow a man to do good work. In cases of deformities of the legs and feet, it is not so much the type of work which the man does as the posture in which he does it, and the type of shoes and supports which he wears.

*Hernia.* Hernia is one of the frequent defects met with when examining applicants. In many

cases the man is completely unaware of the defect, it having caused him no trouble at any time. I have been interested to note that large, complete old hernias have existed for years without causing any inconvenience. Of course these hernias are potentially dangerous, and the employee should always be advised their operative cure or the wearing of a truss. I see no reason why a workman with a well-fitting truss, which satisfactorily holds the hernia, should not be assigned to any department where there is not very heavy lifting to be done. The difficulty with these men is that in hot weather they are apt to remove their trusses because of discomfort, or that for some other reason they fail to wear them. It is for this reason that many large factories refuse to take on their force men with hernias.

*Defects Due to Previous Sickness.* Defectives of this type may be roughly divided into two classes,—those due to chronic or metabolic disorders and those due to some previously acute condition. In the first class belong cases of diabetes, high blood pressure, arteriosclerosis, and nephritis. Workmen of this type require more medical supervision than careful placing in the factory, though of course it is obvious that men with high blood pressure, arteriosclerosis, etc., should not be given work of an exacting type, where speed and heavy labor are combined. The workman of this type in my experience is usually a man of 45 years or over, whose defect has been present over a long period of time, and who has naturally adapted himself to it in selecting his type of work, so that these men instinctively apply for work to which they are fitted. Of course this is not always the case, but its frequency is interesting. The defectives applying for work, with defects the result of previous acute disease, are mostly cases of endocarditis or tuberculosis. The first of these conditions is fairly safe in any position in the shop except those where there is great heat, great humidity, or excessive physical work. In saying this I am supposing that compensation is complete. Of course, if compensation is disturbed, very light work must be selected for the employee, and if it is broken I do not believe that he should be allowed to do any work at all until compensation is fully restored. My experience with hearts has been that it is not the factory work which harms them so much as what happens outside of the factory. Thus one of our employees was specially trained as a blacksmith; he had, however, an hypertrophied heart with chronic valvular disease. I told him that it would be impossible for him to continue the heavy work of a blacksmith. He asked me if it would not be possible for him to continue if he stopped outside athletics. I decided to try what the effect would be. In the course of two years his heart had come in two inches, and at no time was there the slightest sign of disturbed compensation.

Tuberculosis, when arrested, is no bar to employment in a modern factory. Of course the work must be selected and the patient watched, but many cases will do moderately hard work for years without breaking down or signs of activity. Active tuberculosis has no place in the factory.

From the above it will be seen, first, that in many cases it is unnecessary to reject defective employees applying for positions, even though the defect be regarded as severe; second, that medical supervision has a tendency to prevent beginning defects from becoming more pronounced; and, third, that by the supervision of the employee and the close personal touch which the doctor is able to maintain, many defects, which are now found in older men, may be prevented from appearing in the present generation.

#### THE ESTABLISHMENT OF A FIRST-AID HOSPITAL IN INDUSTRY.

BY HERBERT J. CRONIN, M.D., CAMBRIDGE, MASS.

INDUSTRY needs today the physician to help it conserve its workers from the results of disease and accident. The unlimited supply of foreign labor has ceased and may never be resumed. War will drain hundreds of thousands of young men from industry and further diminish the present supply of labor. Industry may be forced to use classes and types of labor previously considered unsuitable. With such possibilities of a scarcity of labor, it is essential that the fullest efficiency of the present workers be maintained. Such efficiency means that the worker give his best effort during working hours, and that he lose no time through accidents or sickness. The physician can aid industry to develop this efficiency.

Industry must produce unlimited war supplies if we are to win the war. Such supplies include nearly everything that is used in civil life, in addition to munitions. England made serious errors in her treatment of industry. Skilled workers were enlisted in the army and replaced by unskilled men and women. Longer hours, attempts at speeding up, larger forces of labor—all were unsuccessful, and production decreased. The army could not proceed, conditions were critical. Production was increased only by a return of the skilled workers and a re-establishment of the former working conditions.

Now in this country, with war conditions as an excuse, an attempt is being made to abrogate the labor laws that have been developed after years of study and effort. Proposals are made to lengthen the hours of labor, and modify the regulations for the work of women and children. All such legislation should be forcibly opposed, because not only will it injure the health of the workers but it will not accomplish

the results claimed by causing a larger production.

A bill is before Congress to establish a Public Health Officers' Reserve Corps. Provisions are made in this bill for the maintenance of a force of physicians to guard the health of industrial workers and maintain their efficiency during the war. Industrial physicians should enroll in this corps if it is established. It will in no way conflict with the Medical Officers' Reserve Corps nor free a man from active service.

#### THE FIRST-AID HOSPITAL.

The establishment of a first-aid hospital in the factory is the first step that should be made by the physician who assumes medical direction of an industry. With the hospital as a center, all other medical activities for the plant can radiate. Careful study of the individual plant will decide the best additions to the medical service.

The hospital should be situated near the center of the plant's greatest activities. The building should be quiet, as pounding and vibrating machinery prevents careful stethoscopic examinations. Good light, and accessibility to the employees and the ambulance are also required. The size of the hospital depends entirely on the number and sex of the employees, as well as the character of the work. A plant with many women employees requires a large number of beds. Provided asepsis is complete, a relatively large amount of work can be done in a small dressing-room.

**Hospital Equipment.** The equipment should include an outfit of instruments that would be suitable for minor surgery; a few eye, ear, nose, and throat instruments, the common surgical drugs and solutions, and an instrument and dressing sterilizer. There should be running water, either in a sink or a lavatory, with a toilet in the room or nearby. The furniture needed is a few steel chairs, dressing tables, instrument cabinet, examining table, screens and a cot, with the usual office furniture, as a desk, typewriter, and records.

The construction of the hospital is limited by the appropriation granted, but if this is moderate, it is best to install a composition material floor. The walls may be painted with a white enamel paint or finished with porcelain brick, which will easily wash. Prismatic glass in the windows is opaque and diffuses the light without shadows. Hanging, reflecting electric lights give a soft light throughout the room, while a nitrogen stand-light is indispensable for close work. A cot built like a small hospital bed is more satisfactory than the regular bed, because a patient will throw himself on the cot who will not lie in a bed. Black rubber sheeting can replace linen sheets on the cot and the table.

A graduate nurse who is skillful with surgical dressing is essential. The routine clerical work can be done by a stenographer. In the average

small or medium-sized plant, a physician is needed but part of the day. An hour or so every day, or even every other day, can accomplish much. In the larger industries that can afford to have continuous medical service, it is debatable whether the employment of several part-time men is not better than the full-time man.

**Necessary Diagnostic Aids Not Needed in the Hospital.** An x-ray machine is not needed in the average first-aid hospital. It is more economical to make arrangements with some local institution for the taking of plates. Examinations of throat cultures, blood smears, Wassermanns, sputa, and Widal's can be done at the state or city board of health laboratories without expense. The free anti-tetanic and diphtheria antitoxins of the state can be used, as well as the smallpox and typhoid vaccines. Thus a physician can bring to the industry all the aids to diagnosis and treatment that are used by him in his private practice.

A plant hospital should be operated strictly as a first-aid hospital. Cases should not be kept there more than a few hours, and if further treatment is required, they should be transferred to a local hospital. For this purpose, arrangements should be made with some hospital to receive all cases sent by the factory, and the plant physician allowed to treat the cases, or act as an associate consultant. For transfer of the patients, a satisfactory ambulance service is essential.

Group treatment is insured in difficult cases by making arrangements with a group of specialists to consult and treat the cases with the plant physician. The insurance company which carries the compensation insurance will provide their staff specialists in compensation cases.

**Duties of the Hospital.** The hospital should treat all cases of accident and sickness that occur inside the plant, and medical conditions that arise outside the plant which interfere with the employees' efficiency. The hospital duty is to keep the men able to work and in the plant. An employee cannot give full service if he has a throbbing abscess, but open the abscess and he returns to work with a different spirit. Traumatic cases return to work immediately if they receive satisfactory attention. The treatment a few minutes after the occurrence of an injury prevents the introduction of infection, with the possibilities of prolonged incapacity. Where men are unable to resume their former occupation after an accident, a slight readjustment of their duties by the physician may keep them in the plant. The men like a first-aid hospital because they lose no time from slight injuries, while it is satisfactory to industry because the men are held in the plant.

#### FIRST-AID STATIONS.

First-aid stations should be established at convenient points throughout a factory. Such

a station consists of a stretcher with blankets, and a first-aid jar, containing the necessary first-aid equipment. The Army and Navy stretcher is the most satisfactory one for this use; it is six feet long, folds together, and has feet so that it can be used as a cot. Blankets are folded in between the poles, are easily accessible and always clean. For delirious or unconscious patients, long straps of leather or canvas should be included within the stretcher, to prevent unskilled stretcher-bearers from rolling the patient off the stretcher.

The best first-aid outfit—small but yet complete—is the standard first-aid jar of the National Affiliated Safety Organizations, which was designed primarily for industrial use. The jar should be placed in a glass-sided cabinet. A few packages of sterile sponges should be included within the cabinet. If there is a first-aid hospital in the plant, the jar should be used for emergencies only, or at night when the hospital is closed. The jar is very convenient for the physician or nurse when attending cases in the factory that could not be removed to the hospital. Immediate attention can be given the patient with the materials at hand.



THE N. A. S. O. FIRST AID JAR.

The jar is made of heavy glass; the contents are visible and easily accessible. Any ordinary emergency can be handled with the materials in the jar and it can safely be entrusted to laymen.

The use of the first-aid stations must be familiar to the employees. Selected men from each department should receive three or four lectures on first aid. It is best to confine these lectures to the barest essentials of first aid,—how to stop hemorrhage, first dressings, transportation on the stretcher, and resuscitation. Special stress should be given the particular hazards of the industry.

*Use of the First-Aid Station.* When an accident occurs in a department, the foreman sends for the nearest stretcher and jar. The patient is placed on the stretcher and covered with blankets. The straps are applied over the thorax and the legs. The nurse, on arrival, takes charge of the case. If it is merely a fainting attack, the patient is removed to a quiet corner, with as little commotion as possible, and there allowed to recover on the stretcher, which acts as an excellent cot. The more serious cases are transferred to the plant hospital, and if they need prolonged bed treatment, are removed to an outside hospital. They are kept on the plant stretcher, and are not moved from it until they are put to bed. This insures that the patient is warm, comfortable and secure, while the discomfort and shock caused by handling the patient is obviated.

#### A STUDY OF THE PROCESSES IN THE INDUSTRY.

The particular health and accident hazards of the industry should be studied by the plant physician. All the processes of the industry and the chemicals used should be known. Consultation with the plant chemist will aid the physician in gaining this knowledge. Employees may be totally ignorant of the materials handled, and it is difficult to instruct them on the dangers, because they may be stampeded and leave their positions. The chemicals and processes of every industry cause diseases and physical conditions due to such processes. For instance, severe abdominal pains, that simulate appendicitis, may be the beginning of lead poisoning; skin diseases may be caused by chemical irritants; and bronchitis by the gas and fumes.

#### CARE OF WOMEN EMPLOYEES.

The care of the women employees is a special work in itself. The accidents to women are usually minor contusions and lacerations. The acute illness of menstruation, often with syncope, is the commonest medical condition. When a girl faints in a large department, the work of the department may be disrupted for some time. Immediate attention by the nurse, the placing the girl on the cot-stretcher, and removal to a quiet corner till she recovers, will return her to work perhaps within an hour. The mental effect of the immediate treatment and quick recovery is excellent on the rest of the employees. Sanitary napkins should be supplied the girls at the first-aid hospital.

## VISITING NURSE.

The visiting nurse is a valuable adjunct to the first-aid hospital. The nurse visits the homes of the absentees to find out if they are sick, and if so, are they receiving adequate medical treatment. Many of the foreign-born laborers cannot speak English, live in squalid conditions in boarding houses, and when they become sick, may lie for days unnoticed. If the nurse reports conditions unfavorable, the plant physician can use all the medical agencies for the treatment of the case that he would apply to a charity case in private practice. The case might be sent to the municipal hospital, or the public or private charitable societies asked to give their assistance. Proper medical attention means an early return of the man to industry.

## PHYSICAL EXAMINATIONS.

The physical examination of employees engaged in hazardous occupations is also a part of the work of the hospital. Periodic examination, with instructions, of the men exposed to poisonous processes will prevent future sickness. The examination of all employees before employment, to discover if they are suitable for the work, usually requires larger and separate quarters than the first-aid hospital.

The work of the physician in industry is practically unlimited. He can branch out into many fields of activity. He can be a large factor in the campaign to prevent accidents; he can supervise the sanitary conditions of the plant; can advise the management on questions of proper lighting, heating, the humidity, fatigue, and the prevention of dust and fumes.

War may return many of our young workers partly maimed,—an arm or a leg gone. Society will not be able to care for them, and they will demand a chance to make a living. Industry must find a way to utilize these men. The physicians can aid in providing suitable artificial limbs, and by placing them at work they will be able to do.

## DISCUSSION.

Dr. A. N. BROUGHTON, Jamaica Plain, said that very few employers appreciate the value of a complete hospital equipment, and it is a matter of education to get an equipment such as is provided by the Norton Company of Worcester. Viewed in the right light, it is a saving of expense. There is no reason why a city or town should bear the expense of establishing and maintaining an x-ray outfit or a diagnostic laboratory, and there is at present no comprehensive plan for taking care of industrial injuries. The matter should be studied on a broad scale, and facilities should be provided.

Dr. J. J. MINOR, Boston, spoke as the chairman of the Committee on Health Industry of the Boston Association for the Relief and Control of Tuberculosis. He said that this committee is now in its third year. Its object is to get employers to have a nurse who is trained in public health work, in their

employ. Members of the committee visit employers of all kinds, factories especially, which employ enough hands to make it possible for them to have a nurse. We explain and show the value of it. When a nurse is employed she is in constant attendance, cares for all accidents as they occur, handing them over to physicians after the first dressing; she sees anyone who feels sick, who needs aid or assistance in any way—physical, mental or moral. She looks after the general hygiene of the factory, gives noon-talks on health, visits the houses, helps in matters of feeding and care of children, and assists in family economies. At first it took a good while to get a hearing from the employers; now they are beginning to understand the value of such a person, and we are consulted by many, some even from a distance. We gladly find a nurse for anyone who can be persuaded to take one, and in case there are not enough employees to warrant a full-time nurse, we arrange for part-time nurses. Rest rooms and rooms in which to do dressings are arranged for under our supervision. In our experience, no one who has ever employed a nurse has given her up. Where there are many employees, we try to have physicians employed, as well as nurses. Only the highest grade trained nurses are sent out. We supervise them for some time, but have no responsibility and make no money charge. Recently the Anti-Tuberculosis League has joined with us, and now we undertake the work for the entire State, feeling that our efforts have been of great value to the community.

Dr. E. J. MCCARTHY, Malden, would like to know how many physicians in the State are being employed in commercial establishments. This institutional work is a wonderful opening for the physician. Much work has been done to prevent accidents from machinery, but the health aspect has been limited; the hazards from dust and gases must be taken into consideration. He thought that the medical profession should take up the problems of industrial diseases and give them intensive study; the general practitioner should be awakened to appreciate the many aspects of industrial diseases.

Dr. A. N. BROUGHTON emphasized anew the need of education of the employer and the insurance companies, who were only too apt to get the cheapest medical attendance that they could, thus often depriving the employees of adequate care.

## Original Articles.

CHANGING METHODS AND ADVANCES  
IN THE TREATMENT OF PROGRESSIVE  
DEAFNESS FROM CHRONIC SECRETORY OTITIS MEDIA.\*

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For the reason that otology is not an exact science, there are problems connected with its practice that should be reconsidered at stated

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intervals. One of these is the diagnosis, prognosis and treatment of that form of progressive deafness which is the result of chronic secretory otitis media.

Previous papers on this subject were read before this society by Dench in 1894, Harris in 1908, and by Holmes in 1912. These three papers are the only ones of record, with the exception of Reik's paper on the relation of the tonsils to middle ear deafness.

The discovery of lymphoid hypertrophy in the vault of the pharynx, and the recognition of its relation to the Eustachian tube by William Meyer, marked an epoch in the prevention and treatment of this form of middle ear disease. This was fifty years ago. Following this discovery, the further appreciation of the close relationship of the nasopharynx to the middle ear made the organization of this society a logical step. A large proportion of its present membership was educated first as otologists, and they have since studied and treated the nasopharynx only so far as, in their judgment, such treatment, operative or non-operative, could influence the prognosis of progressive middle ear disease.

In consulting the files of this society, we find frequent reference made to the necessity of stopping infection by way of the Eustachian tube. Hardly a writer, with the exceptions noted, has ventured clearly to define what he considered to be indicated along this line. The teaching in our universities makes no attempt to correlate the two subjects of rhinology and otology in such a way that the student should know what to do, and what not to do, rhinologically, to influence the middle ear. Each student is left to work out his own clinical experience, beyond instruction which relates specifically to the vault of the pharynx.

Observation among the leading otologists of today would lead us to infer that we are divided into two classes in our efforts to protect the middle ear. In the first class are those whose treatment is almost wholly confined to the epipharynx and Rosenmüller's fossae, to such an extent that it is a common practice for their patients to consult them as aurists, and their confrère, as a rhinologist. In the second class are those who correct all deformities of the septum, abnormal conditions of the turbinates, drain the sinuses, remove tonsils, etc., and in fact do what any rhinologist would do, and believe that in so doing they retard or check the progress of middle ear disease.

The writers of our latest text books give very scanty reference to remote foci, in discussing the etiology of chronic secretory otitis media.

In order that the writer might not misconstrue the attitude of the first group, namely, those who lay especial emphasis on the epipharynx, he sent the following question to fifteen prominent aurists: "Given a case of progressive deafness as the result of chronic secretory

otitis media, where the hearing for the whispered voice has been reduced to 15/25ths, or less, would you expect any improvement from treatment of the nasopharynx, excluding the epipharynx and inflation?"

Replies were received from ten, all of whom said they would not expect any benefit, provided the lymphoid tissue in the vault and fossae had been thoroughly removed. One considered such a case as a beginning otosclerosis, and one had seen active operative measures do harm. In order to prove that positive improvement in hearing results from the cure of remote foci is not an easy problem, as the testimony of the patient or of the aurist is of no scientific value, unless such observations are supported by careful hearing tests, and records covering a term of years, for we are dealing with a chronic disease, which is subject to acute exacerbations, and varying acuity of hearing.

Further, in order that such records should be available for analysis, such observations should extend over a period of from three to five years.

It would seem appropriate, after this length of time, to consider again whether we have made any advance in the treatment of chronic deafness over the pioneer work of Meyer and Tonbyee fifty years ago. Their work has since been elaborated by Politzer, Lucae, Sieberman and others, but the essential facts are unchanged. Can we, today, offer any more hope to this unfortunate class of patients who comprise such a large part of our clientele? If some of them can be helped, is it possible to predict, as a result of examination, that good results will follow our treatment in a given case, and how far any lost hearing may be restored?

In order that we may discuss this subject from common premises, let us define what we mean by chronic secretory otitis media. In a given case, otoscopic examination would show a dull grey, or ground glass appearance of the membrana tympani, absence of the light reflex, and retraction. The clinical picture would be one of slowly progressive loss of hearing, usually more advanced in one ear, with or without tinnitus. The hearing test would show a positive Rinne, the Weber lateralizing toward the more deaf ear. The low note by the Dench fork is unchanged, or slightly raised. The bone conduction is unchanged. The whispered voice, however, may be reduced to as low as 2 to 15/25ths. Given such a case, what conditions, if any, outside of the treatment of the epipharynx will influence its slowly progressive course? Whether any of the lost hearing can be restored is of the greatest importance to the patient, for the restoration of one or two notes in the upper register will determine, to a marked degree, the efficiency of the individual.

In order that we may definitely promise ourselves, or the patient, that the hearing will improve, the writer is guided by the following con-

siderations, all of which depend on the question of re-infection.

It is his experience that in every case of progressive deafness from chronic secretory otitis media, there is a primary focus, which is constant for that individual. This may become quiescent, but in the interval it remains as a low-grade process, subject to acute exacerbations. This point I wish to emphasize, for until the primary focus is drained and cured, such acute exacerbations are a constant menace to the Eustachian tube and middle ear. The course of the disease will be from bad to worse, and a little more rapidly if inflation is practised as a routine.

That there are pathogenic bacteria in the mouth and pharynx at all times is common knowledge. That they possess sufficient virulence under favorable conditions to cause serious pathological conditions in remote organs has been proven by the investigations of Miller, William Hunter, Billings and many other observers.

Depending upon the organism, and the virulence of the infection, the clinical picture is one of toxemia, septicemia or pyemia, running an acute or chronic course. While this work is of recent date, all such facts had been observed years ago by Professor Arkov of Budapest from '78 to '98, substantiated by the painstaking microscopic findings of Miller of Berlin, from '84 to '94, and by the clinical experience of William Hunter of London, who published his results in *The Practitioner* in 1900. Miller, who was educated as a physician, and also as a dentist, showed bacteriologically that focal processes in the teeth, tonsils, or sinuses kept up a low-grade infection of the adjacent tissues, and during exacerbations this might extend by continuity, or directly by way of the lymphatics, or blood stream to neighboring, or remote organs. That such low-grade infection is constantly present either in the epipharynx, or quite as often at some other point in all cases of progressive chronic secretory otitis media, has been the observation of the writer for many years.

In order to determine where this primary focus may be, we inquire of the patient, in taking the history, where these acute exacerbations begin. It is a well-known clinical fact that patients subject to acute infections almost invariably claim that for years such infections commenced in a certain manner, *i. e.*, as a sore throat, and then went up or down, or started as a head cold, and then went down.

In a given individual, this onset is almost constant, and does not usually alternate over many years, and indicates that the primary focus does not entirely subside, but becomes quiescent, and is subject to acute exacerbations, whenever the resistance of the host becomes lowered. This then gives us our first clue as to where we shall begin our treatment, and cannot be determined by the anatomical conditions

of the nares, even if a rhinitis be present. The next question is to ascertain if the hearing varies, *i. e.*, whether it is better on some days than others. In such cases an active cause of the otitis is still present outside of the middle ear, and we can usually hope for improvement up to their best hearing, or more, if we remove the original focus, and clear up the accompanying infection.

Let us suppose a case where the history points to the acute exacerbations being more or less constant in the nose. It is the writer's opinion that no amount of anatomical deformity of the septum influences the course of chronic secretory otitis media until after infection takes place, but that such deformity predisposes to infection.

The tendency to a low-grade infection in the nares is promoted by the following conditions. Given asymmetrical nares from deviation of the septum and there results a compensatory hypertrophy of the turbinate on the concave side from over-function from nature's attempt to equalize the air current. As a result, the soft tissue goes through the various phases of congestion, increased connective tissue and thickening of the mucosa. At this stage any acute infection, on account of defective drainage, may be continued as a low-grade process subject to acute exacerbations. With the defective drainage, if a new infection is virulent enough, the sinuses may become involved. We therefore operate in the nares, not to remove a mechanical obstruction *per se*, but to improve drainage and clear up the attending infection.

To one who accepts this pathology, it is essential to the integrity of the tube and middle ear, that the infections of the nasopharynx should be cured so that acute exacerbations may be prevented. This can be accomplished only by improving the defective drainage, and equalizing the air pressure by reconstruction of the nasal chambers, *i. e.*, straightening deflected septa, removing redundant tissue from the turbinates, reducing posterior hypertrophies, and opening all infected cells.

After this, it is equally important in cases of deafness of long standing, that no low-grade process persists, as an epipharyngitis, or some focus be left that may still be subject to acute exacerbations, and thus offset the effect of our operative procedures as far as improvement of the Eustachian tube is concerned. The middle ear condition grows progressively worse by reason of re-infection from the same primary cause, or from secondary foci, until the hearing is beyond improvement. For this reason auditory re-education by whatever means—inflation, electricity, etc., that does not take into account the underlying cause—cannot be of permanent value until such focus is removed.

**Pharynx.**—In the pharynx all lymphoid tissue, however small, should be removed, including bands between the Eustachian tube and the

pharynx, and degenerate tissue in Rosenmüller's fossae. Where posterior rhinoscopy shows chronic congestion on the lateral pharyngeal wall, the condition of the fossae cannot be determined without a digital examination. Chronic pharyngitis indicated by a glazed appearance of the posterior wall, and a change in the secretions, the writer has always found to be due to caries in the sphenoid, either alone, or in connection with a pyogenic focus in the posterior ethmoids; and the so-called pharyngitis sicca he has not found to exist as an entity. While the diagnosis cannot be made with an ordinary probe, it usually can be made by using one whose shank is no larger than a knitting needle, and that has a fused bead on the end.

**Tonsils.**—The tonsils in their relation to local and systemic disease are only beginning to be appreciated, especially when found in adults between thirty and sixty years of age. As we now understand their pathology they account for many of the diseases that were supposed to be constitutional, such as scrofula, rheumatism, auto-intoxication, etc. Visual examination is useless. The anterior pillar should be pulled forward, and pressure used between the outer wall and the tonsil. In many cases where the tonsil is an active cause of the deafness, free pus will be demonstrated on one side, usually at the junction of the vela lobe, and the middle third of the tonsil, particularly in those cases showing toxemia. This is an enclosed abscess of streptococcus origin and subject to repeated acute exacerbations. The toxemia is marked, and it is probably the cause of chronic nerve degeneration in the labyrinth. Such cases are attended constantly by a low-grade pharyngitis. Reik, in his article published in 1908, on degenerate tonsils and middle ear deafness, has fully described their relation to the Eustachian tube.

In the writer's experience the extension to the Eustachian tube is more often by continuity and through the lymphatics and blood stream along the posterior pillar. The resulting low-grade process can be seen not only on the lateral wall, but in the epipharynx, and over the surface of the posterior nares, as well as in the mouth of the tube.

**Eustachian Tube.**—The pathology of the tube in its relation to middle ear deafness, the writer has usually found either at the isthmus, or the pharyngeal end. Examination shows the tube, if the process has existed long enough to affect its lumen, as it usually has in *chronic cases*, more widely open on the side of the more affected ear, hence inflation is not only counter-indicated, except for diagnostic purposes, but it makes the loss of hearing more rapid. Indeed, after stopping the infection, one of the next steps in our treatment is to try to restore the lost tone of the pharyngeal end by applications within the tube, and exercises that will strengthen the function of the palatine muscles. The

most experienced aurist will be deceived as to the lumen of the tube by auscultation, as very many cases have a decided narrowing at the isthmus when inflation seems clear. If no mechanical obstruction exists at either end of the tube, nature has provided for sufficient ventilation of the middle ear. If such obstruction does exist in *chronic cases*, inflation will do no good, and will add to the gradually diminishing function of the tubal muscle. Applications within the tube are of great benefit, but they should not be repeated too often, or be strong enough to excite too much reaction. This reaction, where the obstruction has been at the isthmus, has been one of the most difficult things for the writer to control in the treatment of the tube.

**The Alveolar Process.**—The best work on the pathology of the alveolar process has been done by dentists. The relation of such foci to local and systemic disease has been repeatedly called to your attention by Dr. Haskin. Miller, of Berlin, in 1894, showed the seriousness to a patient with low resistance of pulpitis, gangrene of the pulp, pericementitis, alveolar abscess, otitis, osteomyelitis, periostitis, alveolar necrosis and pyorrhoea. He called attention to the fact that pyogenic organisms, associated with osseous necrosis, were very virulent, and that the soft tissues over a considerable area showed infection. His bacteriological findings proved that such local foci might involve not only adjacent tissue, but extend by continuity to the tonsils, and pharynx, or through the lymphatics or blood stream to distant organs. For our purposes such diseased conditions should be investigated in conjunction with a dentist, and all devitalized teeth examined by an x-ray, as part of our routine examination in locating foci that may be the cause of a progressive chronic secretory otitis media.

It is often asked why if such causes are active in the etiology of chronic secretory otitis media, it is not easy to settle the question by producing a series of cases corroborated by hearing tests. The answer is because of the fact that such foci are usually multiple and few men have systematically attempted to remove all sources of re-infection. Our knowledge of how to drain all the sinuses, of the menace of pyogenic foci in adult tonsils and the alveolar process, is too recent to enable us to tabulate a long series of *chronic cases* successfully treated. The improvement is necessarily slow and extends over considerable time. With energetic early treatment there is a more hopeful outlook for this field of otology.

As a line of investigation to be further developed, the writer sees no reason why such active foci as are constantly found in the teeth, tonsils and sinuses, should not contain bacteria with selective characteristics, i. e., in some we would have our pathology in the mucous membrane, in others the connective tissue, and in still others the osseous structure.

## CASE HISTORIES.

CASE 1. Dec. 2, 1911. J. F. W., born in N. H.; age 51 years; single; provision broker; focus of infection, sinuses. *P. H.* Measles at 21 years of age. Rheumatism three years ago. Tobacco moderately, no alcohol. Neisser infection. Repeated head colds. Teeth all removed. General health good, except for history of gall stones. *Hearing.* Not normal for ten years. Worse for past 18 months. Sounds confusing. Sharp pain in both ears. Tinnitus. No history of aural discharge. Acute infections start in the head. *Exam.* B. m. t. thickened. Light reflex gone, retracted. B. nares, pus in middle fossae. Adenoid tissue central in the vault. R-R-fossa obstructed. B. Eustachian tubes open, the right being more open than the left. *Diagnosis.* B. o. m. sec. ch. B. sup. ethmoiditis. Repeated reinfections from a pyogenic focus in the ethmoid sinuses. *Treatment.* Exenteration of both ethmoid labyrinths. Argyrol, 20 per cent. to Eustachian tube. Inferior turbinates trimmed. Nasopharynx cleansed with normal salt and sprayed with argyrol, 20 per cent., until infection cleared up. *No inflation* except for diagnosis.

*Hearing tests:*

DEC. 2, 1911.			MARCH 15, 1913.		
R		L	R		L
2/25	W	16/25	15/25	W	17/25
2/35	acu.	9/35	32	D	32
30"/10"	R	35"/13"			(L. L.)
	W				
32	D	32			
	(L. L.)				

MARCH 13, 1915.			MAY 13, 1916.		
R		L	R		L
12/25	W	N	N	W	N
30"/10"	R	35"/13"	32	D	32
	W				(L. L.)
32	D	32			
	(L. L.)				

JAN. 20, 1917.

R		L
N	W	N
35"/10"	R	45"/10"
	W	
32	D	32
	(L. L.)	

*Result.* No colds for a year; no tinnitus; hearing normal.

CASE 2. May 20, 1915. Mrs. H., born in R. I.; age 59 years; married; no children; focus of infection, tonsil. *P. H.* Scarlet fever and typhoid at 29 years of age. Pneumonia 18 months ago. La grippe several times, but not severely until 1915. Tonsillitis annually for several years. Acute infections start in the throat. No aural history until five years ago, when the hearing became impaired, beginning in the right ear. Occasional tinnitus. No climatic variations. Slight catarrh. Pyrosis. Ears worse after each throat irritation. Is below weight. Nose red, color poor, and has been a semi-invalid for 20 years. Never rugged. Prominent otologist told her that nothing could be done, and instructed her maid how to inflate the ears daily. *Examination.* M. t. b. show ground glass appearance, dull, lusterless. L. nares, ant. deviation of septum so that an applicator

cannot be passed. Contact with inferior turbinate. M. M. not injected, and no infection present. Septum, sigmoid deflection. *Sinuses* transilluminate normally, epipharynx negative. Pharynx, low grade pharyngitis. Tonsils, cryptic tonsillar disease. R. free pus (one or two drops). *Diagnosis.* B. o. m. sec. ch. Cryptic tonsillar disease. L. ant. deviation of septum. Progressive deafness secondary to tonsillar infection. *Treatment.* Removal of tonsils, and after-treatment until infection was gone. June 2, operation, Des Brisay Hospital. Complete tonsil enucleation.

*Hearing tests:*

MAY 20, 1915.			OCT. 18, 1915.		
R		L	R		L
6/25	W	6/25	4/25	W	20/25
20"/10"	R	32"/15"	20"/7"	R	25"/11"
	512 F		32	D	32
	W				
32	D	32			
DEC. 10, 1915.			JAN. 11, 1916.		
R		L	R		L
9/25	W	20/25	10/25	W	N
30"/15"	R	22"/12"	32	D	32
32	D	32			

*Result.* Pyrosis gone, weight increased. The right ear, which was the first involved, gained 4 feet. The left is normal. *No inflation.*

CASE 3. June 4, 1916. Mrs. A. L. M., born in Massachusetts; age 66 years; widow; focus of infection, tonsils. *P. H.* No history, aural discharge or otalgia in early life. Hearing has been growing worse for ten years. *F. H.* Patient has two children living. Husband died 21 years ago, cause unknown (suicide). One brother and one sister living and in good health. No family history of deafness. *F.* died age of 60, cause unknown. *M.* died age of 80, cause unknown. *P. I.* Patient has had some ear trouble for the past ten years, which has been getting slowly worse. Hearing varies and is worse when she is tired or has a cold. History of head colds and sore throats once or twice a year. Ringing tinnitus occasionally. Sensation of stopping of ears. History of rheumatism. Left hand shows swollen joint. Used to wake with a headache. Left tonsil shows cryptic disease. Pulsation in ears since sickness three years ago. *Examination.* B. o. m. sec. ch. A. D. M. T. indrawn and dull. L. R. gone, no marked thickening. A. S. M. T. indrawn and lusterless. L. R. gone. Both tubes open, but the right a little the more. Isthmus not narrowed. *Treatment.* L. tonsillar infection cured by operation. No inflation at any time except for diagnosis. Local applications to tubes. Multiple and slow sinusoidal currents used for five minutes in each ear weekly. Current caused vertigo and nausea at first.

*Hearing tests:*

JUNE 4, 1916.			DEC. 15, 1916.		
R		L	R		L
1/25	Whisp.	2/25	3/25	Whisp.	31/2/25
10"/7"	R	10"/5"			
	256 c				
	Weber				
64	L. L.	64			
1/10th	U. L.	N			

FEB. 8, 1917.				APRIL 2, 1917.			
R		L		R		L	
8/25	Whisp.	8/25		10/25	Whisp.	9/25	
N	U. L.	N		13"/7"	R	13"/6"	
32	L. L.	32		Weber			
				N	U. L.	N	
				32	L. L.	32	

*Result.* Patient was gaining the most when she stopped treatment on account of the difficulty of coming into town at her age.

#### CONCLUSIONS.

1. Every case of chronic progressive middle ear deafness has a primary focus, which persists as a low-grade infection, subject to acute exacerbations. In chronic cases such foci are usually multiple.
2. Such primary focus is usually constant for the individual, and is indicated by the location of exacerbations.
3. Every case showing variable hearing can usually be improved up to their best hearing, or more.
4. So-called cases of nerve deafness of non-specific origin are in the experience of the writer due to toxemia from some definite focus.
5. Inflation in *chronic cases* is unscientific and harmful as a routine, as the tube is already open and has partly lost its tone in the majority of cases; and in those cases not open, it does nothing to remove the cause.
6. Nasal obstructions do no harm to the middle ear unless infection is present. Such obstructions, however, are the primary cause in the development of imperfect drainage, which predisposes to infection, and which is always present in cases of chronic secretory otitis media originating in the nose.
7. Foci, whether in the sinuses, tonsils, mandible or epipharynx, are potential factors in the progress of chronic progressive otitis media, either by direct extension or through the lymph and blood streams.
8. No hearing test will forecast the improvement in a given case as long as we have a positive Rinné with variable hearing.
9. Whatever the macroscopic appearance of the membrana tympani, the cause of the deafness is active for a long time outside the middle ear as a toxemia, or low-grade infection subject to acute exacerbations.
10. Constitutional diseases have but little effect upon the course of chronic secretory otitis media, except to lower the patient's resistance and make him more susceptible to exacerbations of his localized focus or foci.

## THE ETIOLOGY OF DISTURBANCES OF THE HEART BEAT.\*

BY GEORGE EDWARD BARNES, B.A., M.D.,  
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IN attempting to solve the enigmas of disturbances of the heart beat I recognize the great difficulty and the uniqueness of the task. I trust and believe that I have ideas which will add to our understanding of these puzzling ailments.

Each student of this subject may choose between the neurogenic and the myogenic theory of the cardiac activity. I am quite well convinced that the neurogenic theory is correct, because within the last decade histological study has revealed minute ganglia in parts of the heart formerly supposed to be without them, particularly the apex, because certain forms of cardiac activity can be best explained on this theory, and because the intestine, which is an analogous structure, acts more obviously according to the neurogenic theory. If a ball of some smooth substance is placed in the lumen of a segment of gut removed from the body, a peristaltic wave will arise behind the ball and will propel it through the entire segment and expel it. But if the intrinsic ganglia in the plexus of Auerbach are removed, the segment of intestine remains motionless. If you adhere to the myogenic theory you should, in reading the following discussion, substitute in your mind the muscular tissue for the intrinsic ganglia.

Some specialists on heart diseases are inclined to think that disturbances of the heart beat are due in some unexplained way to disorders of the nervous system; most believe that they are due to muscular tissue disease, there being or having been a rheumatic or other infection; others believe that they are due primarily to diseased muscular tissue, but admit that emotion and exercise seem in some way to precipitate attacks. All admit that these disturbances of the heart beat occur frequently when no disease of the muscle can be discovered by gross or microscopic examination. I believe that the usual fundamental etiological factor in disturbances of the heart beat is a more or less neurasthenic condition, usually the sthenic form, and what I may call the sthenic rebound or recovery from the asthenic form, there being present a disturbed and unbalanced activity of ganglionic cells.

The theory which is, perhaps, most readily formed, on the neurogenic hypothesis, to account for disturbances of accelerated heart beat, is that somewhere in the course of the cerebro-cardiac path of the "sympathetic" or thoraco-lumbar innervation there takes place a stimulation which accelerates the heart beat. This reaction does take place when certain more or less

\* Read before the Medical Society of the County of Herkimer, at Herkimer, N. Y., June 5, 1917. This article should be read as a sequel to the article entitled "The Rationale of Neurasthenia and of Disturbances of Arterial Tension," which appeared in this JOURNAL, Oct. 18, 1917.

violent affective currents pass from the brain and cause increase in rapidity and force of heart beat. Indeed, this phenomenon in a mild form is very frequent and in more extreme form is seen occasionally, especially during recovery from nervous prostration. But this simple tachycardia has well-known differentiation from paroxysmal tachycardia and, moreover, paroxysmal tachycardia or any other form of the more recently discovered disturbances of the heart beat cannot be caused by section of the vagi and stimulation of the accelerators.

On the other hand, there is evidence in some of these disturbances, particularly in case of diminished rate, of excessive vagal activity. In asthenic neurasthenia the radiation of pathetic affectivity to the heart takes place over the vagus nerve, and the rate of the heart beat is slowed. This is a very frequent phenomenon, an important fact which seems to be essentially unknown in clinical medicine.

It is generally agreed that sinus arrhythmia is due to increase of vagal tone, and it is stated that it is due to nothing else. If you look into the matter carefully I do not think you will consider that I am "splitting hairs" in saying that it is more properly due to the excess of vagal tone over the tone of the accelerator system. There is good clinical reason for believing that there is maintained over the heart, even necessarily, a constant tonal activity in both of these systems of nerves; and the physiologist Luciani expresses the opinion that there is this constant dual control. During vigorous exercise, as in athletes, children and, especially, in puppies, while affectivity is stimulating the rate of the heart, there is little doubt that there is taking place also an increased vagal tone to regulate the cardiac rhythm. But the vagal tone tends sometimes to continue more or less continuously or intermittently for a variable period after the cessation of the acceleration. In other words, in many of these cases of sinus arrhythmia, if the accelerators were not first brought into action by violent affectivity there would not be any subsequent excessive vagal tone. After the subsidence of the acceleration of the heart during fever, this same phenomenon is sometimes observed. This excess of vagal over accelerator tone also occurs in certain purely affective conditions, that is, apart from exercise or fever, as at puberty, and when the heart has been weakened by strong pathetic affectivity, the stimulation of the vagus in this instance, of course, being primary.

Extrasystole or premature contraction is certainly a complex problem. It is generally agreed that the impulse which causes an extrasystole originates at some point other than the sino-auricular node, and that the cardiac tissue at this point is unusually excitable. Most students of this subject hold that this unusually excitable point is in the muscle. Perhaps it is, but much more probably it is in the ganglia. Now what causes the irritability and the stimu-

lation of this point, of this ganglion cell? Is it the stimulating effect of an impulse from the accelerator, the "sympathetic" or thoracic nerves? Although there is distinct evidence in many cases in which extrasystole occurs that the thoracic division of the nervous system is unusually active, it is hardly probable that this is, at least alone, the cause of extrasystole, for when the heart rate is accelerated through the thoracic division extrasystoles usually cease. Can the stimulating impulse come from the vagus nerve? There is abundant evidence of marked vagal activity in most cases of extrasystole, but how can inhibitory and diastolic impulses directly cause a contraction, an extrasystolic contraction, of the heart? Of course they cannot. However, we must not slight the fact that in nearly all cases there is good evidence of excessive vagal activity, and in many cases positive evidence that an increase of vagal activity, as in "pathetic" emotions or unmistakable vagal reflexes from the viscera, immediately precede the extrasystole. Among the many forms of vagal activity which may be present is one which I have not seen mentioned in this connection, and it should be both mentioned and emphasized, for it is of frequent occurrence. It arises thus: during exertion or during a certain "violent" emotion a violent affective current passes over the thoracic-lumbar fibers and, by causing an increase in the tone of the cardiac and arterial musculature, raises the blood pressure, which, in turn, stimulates the vagus centers. This reflex mechanism is recognized by physiology.

I suggest the following solution of the problem as to the causation of extrasystole. An impulse from the vagus causes a relaxation of the wall of the heart, and this very relaxation of the muscle fibers stimulates, by pulling on it, an excitable ganglion cell so that it starts an impulse which inaugurates an extrasystole. This hypothesis is all the more probable when there is—as there presumably often is—a hyper-tonicity of the whole heart due to marked activity of the "sympathetic" or thoracic system. It is shown by physiological experimentation that stimulation of the vagus acts often on one part of the heart more than on another part, acting, for instance, sometimes most on the ventricles and sometimes most on the auricles. Now if the heart muscle is in a state of marked tonicity, or even if it is only normally tonic, or even if it is already somewhat dilated, it is quite conceivable that when a vagal relaxing current passes into the muscle this muscle may not relax equally at all points, but may relax in a more or less uneven and zigzag manner, which would easily stimulate an irritable ganglion situated on the border between the slowly and the more actively relaxing tissues. The sensations of patients are very suggestive. When an extrasystole occurs there is a sensation of void or emptiness around the heart and in the throat. Now, some neurasthenic patients who are sub-

jeet to extrasystoles often experience constantly for varying periods this same kind of sensation of void, and during these periods they experience the greatest number of extrasystoles. This sensation of void, whether very marked and appearing with an extrasystole or whether more vague and appearing continuously for a varying period, is doubtless caused by cardiac relaxation which is brought about by vagal currents, either reflex or direct from the brain, that is, affective. The theory which I present is not so complex as it would at first seem to be, and it explains in a definite and obvious way just how an abnormal point may originate an impulse before the sino-auricular node does, which, so far as I know, other suggestions do not do.

Mackenzie says: "If from any cause some other part of the heart becomes more excitable, in such a manner that it can produce this stimulus for contraction more rapidly than the sino-auricular node, then the contractions will start there and produce occasional beats as in extrasystoles. . . or if the sino-auricular node itself becomes too slow in its stimulus production, then some other part of the heart may start off before it, as in extrasystole." Here are two statements. The first one avoids entirely making any suggestion as to the cause of the starting of the abnormal impulse, for it says, "If from any cause. . . ." If Mackenzie had any real suggestion in his mind he did not mention it. The second statement does contain the suggestion that because of the slowness of activity of the sino-auricular node some other part of the heart may start the impulse. This is certainly one thing to be thought of, but there seem to be three important objections to it. In the first place, if this is all there is to the matter, would not an extrasystole be apt to occur every time the speed of the sino-auricular node slows to a certain degree? Such a uniform event would be expected according to such a theory unless it is supposed that the excitability of the abnormal center fluctuates from time to time, but such fluctuation would not be so apt to occur if, as he supposes, the phenomenon depends primarily on diseased muscular tissue or fibrosis. In the second place, some extrasystoles occur so quickly after a regular contraction that it would hardly seem as if during that minute period any point of the heart would develop an independent impulse (without being in some way stimulated). But if it can thus spontaneously develop an independent impulse, it was manifestly during that development not under the control of the vagus nerve; and if it was not under the control of the vagus preceding the maturation of the impulse, why, after it has once broken from the control of the vagus, does it immediately return to the control of the vagus instead of continuing to produce abnormal impulses and beats in accordance with its already spontaneously initiated abnormal activity? In the third place, extrasystoles sometimes occur when the rate of heart beat is rapid. So far as I

know, Lewis offers no real explanation for the initiation of abnormal impulses.

The more often an extrasystole is formed, the more easily the abnormal activity takes place. A veritable habit is formed. The condition should be remedied before a habit is formed. I believe the heart should be rested so far as necessary and treated until extrasystoles cease.

Extrasystole rests on a neurasthenic basis. The neurasthenic condition causes the unusual irritability of the cardiac ganglia and the disturbing currents of both the thoracic and vagal nerves.

In paroxysmal tachycardia (that is, "simple paroxysmal tachycardia"), as in extrasystole, there is evidence, just before the attack, of the same or similar affective disturbances and neurasthenia, there is evidence of the same excessive activity of the thoracic and vagal currents, the same arterial contraction and the same irritability of ganglion cells, and there is probably more often a rise of blood pressure. I suggest the same method of origin for the initial pathological impulse. But in paroxysmal tachycardia the irritability of the stimulated ganglion cell or cells is so great that the abnormal contractions are continued for a longer or shorter time. There is a universal tendency in the whole autonomic nervous system for the lower ganglionic centers to continue the activity of the higher centers when the latter are cut off, and this fact and the great irritability of the ganglia account for the continuance of the pathological impulse of paroxysmal tachycardia after it has been aroused, as above suggested. In extrasystole the pathological activity is momentary because the abnormally irritable ganglion has only moderately excessive irritability, and the validity of the suggestion which I make is both possible and sufficient; but in the case of paroxysmal tachycardia, while the validity of the suggestion is possible, the question arises whether it is sufficient. It is easily sufficient, for the control of the vagus over the cardiac activity has marked limitations. Irritable cardiac ganglia certainly sometimes break away from the vagus control, especially during cardiac dilatation, and start a rhythm varying with the irritability. It seems as if some stimulation such as I have suggested is necessary to start the abnormally situated and acting impulse. The abrupt onset indicates that some stimulus starts the abnormal impulse.

Heart block, although frequently due, especially the complete form, to organic disease in the auriculo-ventricular bundle, is sometimes undoubtedly caused by increased vagal activity originating anywhere in the cerebro-cardiac path.

The same affective and ganglionic disturbances are present in auricular flutter and auricular fibrillation which are present in extrasystole and paroxysmal tachycardia, and there is reason to think that the abnormal impulses have the same origin and nature in the two former diseases as in the two latter. Flutter is

apparently paroxysmal tachycardia in which the origin and passage of impulses is so rapid that they cannot all get through the auriculo-ventricular bundle; that is, they are blocked. Fibrillation can be produced from flutter by experimental and by therapeutic means, and apparently it is flutter in which abnormal impulses are formed at multiple points on account of the great irritability of many ganglia. (Cardiac muscle cannot be tetanized.) The presence of mitral stenosis in some cases of fibrillation merely serves to dam back the blood, the pressure of which increases the irritability of, and helps to stimulate, the ganglia. Mitral stenosis is not a prerequisite to the occurrence of fibrillation but, naturally, sometimes helps to precipitate it.

From sinus arrhythmia through extrasystole, paroxysmal tachycardia, auricular flutter to auricular fibrillation, there is to be observed a progressive increase in the irritability of the ganglia.

Mackenzie and Lewis do not make, and apparently do not claim to make, any suggestion as to the immediate cause of the initiation of the pathological beat. In fact, they apparently do not even raise the question. However, there seems to be a real problem here of great importance. If my suggestions stimulate the study of the question, they will not have been made in vain.

As to the nature of alternation, the disturbance seems to me to indicate exhausted ganglion cells rather than exhausted muscle, although the two, doubtless, often exist together. In this disturbance it would seem that the heart rests well only during every other diastole and contracts well only after the good rest, but contracts less well after the poor rest. It reminds me strongly of a very weak, neurasthenic patient who can rest well only every other night, and feels active only on the day following the good rest.

In disturbances of the heart beat one can always find evidences of other affective diseases, of other forms of neurasthenia. This is a most important thing. The ganglion cells of the heart and the whole vagal and "sympathetic" or thoraco-lumbar divisions of the great autonomic nervous system have been rendered irritable and hyper-active by the affective disturbances. As the heart disturbance has been brought about primarily by the neurasthenia and also, secondarily, by the state of the arteries, the treatment of the disturbance of the heart must include the treatment of the neurasthenia and the arterial condition. The whole matter is full of circles with which one should be familiar. A most important matter in the treatment of any of these heart disturbances is that all of them should receive treatment early, before the disturbance becomes a habit, and also before the kidneys (if they are endangered) have become damaged. Neurasthenia, affective disease, is at the bottom of prevalent and increas-

ing cardio-vascular-renal disease, and there is no doubt about it.

Just what is the relation of infections and their fibrotic consequences to disturbances of the heart beat? It is easy to say that a rheumatic or other infection is the cause of a disturbance when such an infection is present, or was recently present, or was remotely present, and it is easy to elicit an erroneous history of previous rheumatism. (It is equally easy to say that syphilis is the cause of every disease of which we do not know the cause.) I believe that these disturbances of heart beat exist far most frequently in hearts in which there is no trace of damage done by rheumatic or other infections. The one disease in which evidence of former damage by rheumatic infection is frequently observable is auricular fibrillation, and in this disease, as I have already said, the accumulated dammed-back blood acts, as would be expected according to physiological experiments, to stimulate the activity of the heart chamber, which is, in case of fibrillation, predisposed to fibrillate on account of the condition of its ganglia. Even Lewis, who believes that disease of the muscle is at the bottom of disturbances of the heart beat, says, in regard to auricular fibrillation, immediately after mentioning the chronic inflammatory fibrotic changes found by microscopic examination: "Such is the tale told by the microscope, but it does not justify us in holding that the inflammatory reaction is the cause of the altered mechanism. . . Similar lesions are found where fibrillation has never occurred; and hearts which show this disorder may not present the lesions described." That sounds correct and it is correct. However, as the pressure of the dammed-back blood in mitral stenosis serves to stimulate the chamber in predisposed cases, it may be regarded as a contributory or exciting cause only. A similar conclusion may be reached in regard to any of the disturbances of the heart beat which appear during or just after infectious fevers. As a matter of fact, these disturbances appear more frequently just after the course of the fever than during it. This would not be apt to be so if the disorder were caused by the infection itself or its toxins, and it indicates that the disorder is precipitated during the reaction of the nervous system against the effects which have been produced by the infection and its toxins. The occurrence of a disturbance of the heart beat just after or even during a fever is good indication that the nervous system and the heart are predisposed to the disturbances of the beat. In a somewhat similar way, mental delirium is connected with fever in some cases only.

The microscopic anatomy of the heart in the disorders of the beat probably needs to be gone over again, and it is certain that the findings need to be interpreted with a broader knowledge of the clinical disturbances which affect the heart muscle and ganglia. Neurasthenic disturbances in the circulation affect the metabolic

and anatomical condition of every tissue in the body, the heart included; and neurasthenia, aside from being a most important and prevalent multiform entity, often complicates any other ailment to which flesh is heir.

The ideas in this paper I am glad to add as my bit to the great work done by the masters on heart diseases.

### Clinical Department.

#### A CASE OF BRAIN TUMOR SHOWING EXTENSIVE DESTRUCTION, WITH FEW DIAGNOSTIC SYMPTOMS.

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Pathologist at Worcester State Hospital.

THE following case of brain tumor shows several points of interest which make it worthy of being reported.

This case is that of a man dying at the Worcester State Hospital at the age of seventy. The case record shows the following:

Family history negative. He was a native of Massachusetts, married, and a painter by occupation; meagre education. He supported himself since eight years of age. Most of his life he was a house painter, but for the past ten years has painted machines in a machine shop. He always drank whiskey and beer to some extent, but always tried to provide well for his family; was always irritable when drinking, but quiet when not drinking.

The beginning of his psychosis is said to date back three years, when he would wander away from home. For a year before admission, his employment was unsteady and he was irritable all of the time. At one time he is said to have told his wife to keep away from him as he might harm her. He developed a tendency to lie in bed much of the time, but would often get up at night and go about the house to see if there were any intruders. He is described as having a few attacks in which he would become pale, rigid and confused. After these he would sleep for a long time. No convulsions, however, are mentioned. Untidiness in his personal habits became especially noticeable. Four days before admission to the hospital he wandered away from home and was arrested for vagrancy.

When admitted to the hospital he was quiet. He appeared somewhat confused and seemed to know nothing about his recent arrest. His gross memory defect was marked and he tried to remedy it by fabrications. His answers to questions were, for the most part, relevant, but incorrect.

The physical examination showed very little of diagnostic value. He was well developed, but somewhat poorly nourished. He complained of no abnormal sensations. His face muscles were symmetrical. His pupils were equal, regular, and reacted to light and accommodation. Marked dermographia. His gait was normal, but he swayed slightly in Romberg. Hand grips weak, but equal. No clonus and no Babinski. The radial arteries were thickened and tortuous. He showed a systolic blood pressure of 184. Wassermann reaction on blood serum negative.

During his residence here his condition gradually became worse. His mental confusion became more marked. He was confined entirely to his bed and was very untidy, apparently having no control of his sphincters, and it was necessary for him to be spoon fed. He developed bronchopneumonia and died after a residence of twenty days in the hospital. Diagnosis: Organic dementia, arteriosclerotic type.

Permission for autopsy was granted and performed on April 23, 1917. The post-mortem examination showed a well marked bronchopneumonia and a general sclerotic and calcareous condition of the vessels; otherwise the trunk organs showed nothing of importance.

The superficial examination of the brain showed the left cerebral hemisphere to be much larger than the right. The convolutions on this side were very much flattened and had the appearance of being pressed out by some internal pressure. Palpation over the left frontal lobe revealed an area of fluctuation. The brain was placed in formalin and allowed to harden.

After hardening, the following points were noted: The inequality of the two hemispheres, with a broadening of the convolutions on the left side, as mentioned above. This is shown in figures 1 and 2.

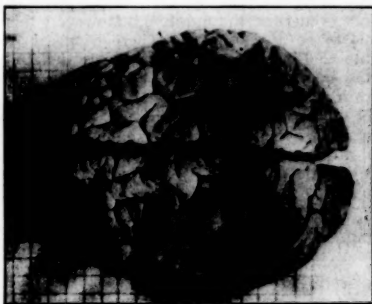


FIG. 1. Showing inequality of hemispheres. Superior view.



FIG. 2. Showing inferior surface.

Separation of the frontal portion of the hemispheres showed a bulging of the left first frontal convolution and gyrus fornicatus, causing a correspond-

ing depression on the opposite side. The left cerebellar hemisphere is slightly smaller than the right. Separation of the two hemispheres by longitudinal section showed a well-marked tumor, the cut surface of which was 3 cm. in diameter, occupying the anterior portion of the corpus callosum. (Figure 3.) The tumor was soft and grayish-red in color. Portions were so soft that it was difficult to handle without breaking. Transverse sections of the brain showed that the tumor mass was almost entirely in the left hemisphere, involving the entire white matter of the left frontal lobe. The right frontal lobe was

rich in blood vessels. The walls of the blood vessels were poorly formed and many of the vessels contained thrombi. In many places there were quite large collections of red blood corpuscles lying outside the vessels. Tumor cells were shown throughout. A few areas showed both cells and neuroglia fibrils. The cells were both round and spindle shaped, many of them being very long and narrow. (Figures 5 and 6.) It appears, from the character of the cells and neuroglia fibrils, to be a glioma. The extent to which it destroyed the cerebral tissue was very striking.



FIG. 3. Medial surface of the left hemisphere, showing tumor in corpus callosum.

involved only to a slight extent. The left lenticular nucleus and caudate nucleus were extensively involved, also the internal capsule. The firmest part of the tumor was the mesial portion, cut through in separating the hemisphere. The main mass was jelly-like in consistency. (Figure 4.)



FIG. 4. Showing extensive destruction of left hemisphere.

Microscopic examination of sections stained with Mallory's neuroglia stain showed that the tumor was composed of cells and neuroglia fibrils and was very



FIG. 5. Showing tumor cells. Mallory's neuroglia stain.



FIG. 6. Showing fibers. Mallory's neuroglia stain.

Starr points out that extensive tumors may exist with few diagnostic symptoms and mentions one case of an extensive glioma of the frontal lobe of left side diagnosed, on account of convulsive seizures, as a case of epilepsy.

This case also presented attacks which might be considered epileptiform in nature; however, no convulsive movements were noted.

Cushing mentions loss of control of the sphincter.

ters in connection with tumors of the corpus callosum. This symptom was noticed very early in the present case. The main features of the case, however, appear to be gradual progressing physical weakness and mental confusion. These symptoms, together with the high blood pressure and palpable radial arteries, point to a diagnosis of arteriosclerotic insanity.

To summarize: we have a glioma of the brain causing extensive destruction of the brain tissue. It involves the corpus callosum, white matter of the left frontal lobe, caudate and lenticular nuclei and internal capsule. The mental symptoms have showed themselves by a tendency to wander about, increased irritableness and loss of memory. An early symptom was the loss of control of the sphincters. The history is one of occasional seizures, characterized by pallor, rigidity and confusion, followed by prolonged sleep. As the disease progressed, memory loss and confusion increased. Twenty days before his death he was able to walk with a normal gait, and hand grips, although weak, were equal. Pupils reacted normally and tendon reflexes showed nothing unusual. Eye grounds were not examined. As his mental confusion progressed it became necessary to keep him in bed and feed him with a spoon, but no paralysis of either upper or lower extremities is noted, neither were any speech difficulties mentioned. Headache is nowhere mentioned in the case, either before or after admission to the hospital.

The case seems interesting on account of the poverty of diagnostic features as compared with the extensive destruction of brain tissue.

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## HEMORRHAGE FOLLOWING TONSILLECTOMY.

By H. H. AMSDEN, M.D., CONCORD, N. H.

PAUL D., age 9 years, was admitted to the Margaret Pillsbury General Hospital on Saturday, August 4th, at 9 p. m., with the following history: Tonsillectomy had been done in a Boston clinic on Monday, July 30th, and he had returned home the next day, and had apparently been all right until Saturday, when he began to bleed freely. Inspection of the throat, under ether, showed a large buttonhole of the right anterior pillar, from the upper angle of which the bleeding occurred, which was easily controlled by a catgut stitch. There was considerable shock, necessitating subcutaneous infusion of 500 c.c. salt solution.

The late occurrence of the hemorrhage was evidently due to contraction of the tissues in healing, thus allowing the upper angle of the wound to open. The case suggests the advisability of immediate repair of such injuries of the throat incident to tonsillectomy.

## Book Reviews.

*A Text-Book of Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and Their Employment Upon a Rational Basis.* By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; One-time Clinical Professor of Diseases of Children in the University of Pennsylvania. Sixteenth edition, enlarged, thoroughly revised, and largely re-written. Illustrated with 149 engravings and 7 plates. Philadelphia and New York: Lea & Febiger. 1916.

The mere fact that this work has appeared in its sixteenth edition would seem to prove that it was necessary to the medical profession, but still as one pursues it, one can but realize that it is more or less a monument erected to past practices and therapeutics, of which we are now happily largely free. Simplicity is certainly not one of its characteristics, when twenty different varieties of iron are listed and described and that acme of shot-gun prescriptions, Warburg's tincture, is included.

On the whole, however, the scheme of arrangement is rather a good one. Beginning with general therapeutical considerations in which the general methods of absorption and action of drugs are considered, we have a description of the different pharmaceutical preparations and a discussion of the metric system in which an attempt is made to give corresponding measures in the old or apothecaries' table and in the newer one, the grams and cubic centimeters. Old customs and uses die hard and it would seem that soon, some one, as the pharmacopeia has already done, should "take the bull by the horns," and give us a work in which the metric system alone should be employed. Half of the difficulty which the younger generation have with this decimal system is due to the persistent efforts of authors to bridge the old and the new. This necessarily causes needless complications of fractions in dosage and entirely obliterates the simplicity of the newer system, which is its main recommendation. It would seem, too, that a lesson in Latin, such as ought to be acquired by every youth in the first year of his high school course, should not be necessarily included in a work of this character, when such efforts are being made for preliminary education of medical students.

The second part deals with drugs, of which an excellent description is given as well as their physiological action. Due weight is given to the therapeutic action of drugs and rather more

emphasis than necessary is laid upon their application to control symptoms, without thorough knowledge of the underlying conditions which produce these symptoms. Many drugs, too, are retained, which have practically passed out of use by the majority of physicians. All of the newer, useful drugs are mentioned, and, as far as a cursory examination is concerned, none are included which would offend the rigid principles laid down by the American Medical Association council in chemistry.

The third part includes remedial measures other than drugs, and is the most valuable in the book, since these measures are, unfortunately, less understood by the profession at large than the uses of drugs, one of which is supposed to exist for every ill to which flesh is heir.

The author's emphatic stand on venesection is to be heartily commended, since many a young physician finds his hands tied when it comes to the employment of this measure, clearly indicated by the pathological condition before him, because of the fear that on account of its rare use his efforts will be misunderstood, not only by the patient's relatives and friends but also by other physicians. This section also includes an article on dietetics, unfortunately, only too brief.

The fourth part deals with the employment of drugs and other measures in specific diseases as well as to overcome certain symptoms. It seems unfortunate that a condition termed by the laity as "biliousness," should receive the careful consideration of the author because, as far as known, this condition has various pathologies or, as one might say, no pathology at all, and the propagation of such a term would seem to halt our progress toward a clear definition of disease. Dyspnea, too, is another condition which receives his careful attention, but as this is merely a symptom and may arise from conditions as varied as obesity and actual cardiac decompensation, it would hardly seem that physicians should be taught to treat it as an entity.

On the whole, until therapeutics are taught with the directness and simplicity which is presented in the small works issued by the American Medical Association, this book will probably prove as good as any to help the halting physician whose early instruction in therapeutics was woefully neglected.

*The Pathology and Differential Diagnosis of Infectious Diseases of Animals.* By VERANUS ALVA MOORE, B.S., M.D., V.M.D. Fourth edition, revised and enlarged. New York: The Macmillan Company. 1916.

The importance of animal diseases in relation to those of human beings is not merely economic but clinical, and gives a genuine value for physicians to any work on veterinary medicine. This fourth edition of a standard textbook of animal diseases, appearing after an in-

terval of eight years since the third, aims to provide for veterinary students and practitioners a systematic account of the common diseases coming within the category of their diagnosis and treatment. The text has been carefully revised, much of it rewritten and numerous additions made. Two appendices have been added, one on the requirements for interstate shipment of livestock and the other on federal regulations for the veterinary inspection of meat. The book is well illustrated with 120 figures in the text and contains one large folded chart insert. The references to literature are conveniently and alphabetically grouped at the close of the section dealing with each disease. It is a work cordially to be recommended for the perusal of all interested in animal diseases, either for their own sake or in their sanitary and economic relation.

*Man, an Adaptive Mechanism.* By GEORGE W. CRILE, F.A.C.S. Edited by ANNETTE B. AUSTIN, A.B. New York: The Macmillan Company. 1916.

In the issue of the JOURNAL for February 24, 1916 (Volume clxxiv, page 287), we reviewed Dr. Crile's monograph entitled "A Mechanistic View of War and Peace." This new volume by the same author may be regarded as an extension and continuation of the same subject, with which he has been dealing experimentally and clinically for a score of years. The main thesis of this new contribution is "that man is essentially an energy-transforming mechanism, obeying the laws of physics as do other mechanisms." His purpose in promulgating this thesis is to increase the scope of preventive medicine, to indicate means to relieve and even cure certain acute and chronic diseases, and to stimulate a biologic trend of thought in medicine to the end that disease, like health, may be given its evolutionary setting. After a brief introduction the work is divided into three parts, the first dealing briefly with the familiar and now well-recognized postulate of biologic adaptation and the ascent of man. The second part deals with the mechanisms of adaptation, which the author classifies as receptor and effector; and the third part deals with the biologic interpretation of the phenomena of health and disease from the mechanistic standpoint. In the development of his theory, it is interesting to note that he announces the substitution of the word "anociation" for his previous term "anoci-association." Like the preceding work this book touches closely on the mechanistic interpretation of the animate universe according to Loeb. It is admirably illustrated with a series of eighty-eight figures representing both macroscopic and microscopic phenomena of mechanical activation. Whatever its ultimate acceptance, the work is a genuine contribution to medical philosophy and as such deserves the attention of the profession.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

### PROBLEMS OF TRENCH FEVER.

TRENCH FEVER, which is regarded by all who have seen it as an unwelcome remembrancer of filth and war, seems to be confined to the British troops in Flanders. It seems rather difficult to explain why, for the supposed carriers of the disease, lice, are, unfortunately, common in all climates and under all conditions of dirt and hardship. Results of bathing and clean clothes are often curative, or leading to cure, which is certainly significant. Some cases, it is reported, have occurred in other countries besides France and Flanders—in Mesopotamia, the Balkans and Salonica. Captain J. M. A. Costello, in a careful article in the *Practitioner* of May, 1917, questions this. He states that trench fever occurs in Flanders but not in England, and always among British troops. Surgeons of other nations have written little about it. Except a summary of the British reports in the *Policlinico*, and a brief description of what may be trench fever in the *Wiener klinische Wochen-*

*schrift*, we do not remember that we have seen any other descriptions at all resembling it.

The symptoms are so diversified that there is something ill-defined about the clinical picture. It bears a close resemblance to malarial fever. Quinine, however, seems to have no effect, and cases recover without medicine. The fever is described as recurrent, relapsing, or intermittent. It is so fugitive that, at first, trench fever was labelled "pyrexia of uncertain origin." It reminds English students of an older conception, "fever without physical signs." In fact, the possibility of fever without specific cause, in the circumstances of trench life, may well seem an open question. The chief thing is that the fever exists for two distinct periods, with a normal interval between them. The curve is said to be characteristic, but the published charts do not bear out this view. In some cases the temperature ranged from 99 to 102, in others from 103 to 104. Generally it is more like the pyrexia of influenza than any other, but Combes has observed a recurrent type, and many writers speak of remissions. All agree that the onset is extremely sudden.

There are a number of signs about this fever that experts have sought to differentiate in meaning. The season at which it occurs is one. Some writers state that most cases occur in winter, while others believe that the fever is an affair of spring and summer. Cold and wet have a great influence, but the most certain appears to be nervous strain, with constipation and lack of sleep. Overwork and anxiety are believed to provoke an attack. Other depressing influences—bad food, wet feet and wet clothes—are, doubtless, causes. An interesting phenomenon is much discussed, viz., that trench fever leaves very little weakness or physical prostration behind it. This is peculiar if the cause be, as seems likely, a blood parasite.

There is no doubt that the disease is infectious. It often happens that several men in a dug-out are taken at the same time, and contacts show the characteristic symptoms in thirty-six or forty-eight hours. The blood of patients, when injected intravenously, produces the fever in its regular form, the period of incubation being 15 days. Lice, as has been suggested, transmit the germ. In 1915 Major J. H. P. Grahame made the important discovery that a louse, a parasite of the Indian rat, was the host of the unknown protozoön. Lice were allowed to bite patients and then the healthy controls, in whom

the typical manifestations shortly appeared. The experiment gives a clue to the nature of the specific organism. Similar observations have been made by Hurst, Hughes, McNee, and his colleagues. The etiology, if true, is also interesting as illustrating the main features of the disease—its suddenness, climatology, and periodicity.

The newest thing about trench fever is the study of the blood. Recently, Captain Lyn Diamond described in the *Lancet* a small hemogregarine resembling in many respects *Hemogregarina gracilis*, which he has found in the venous blood, the blood from the liver, spleen, and lung in 12 cases. It is present in small numbers a day or two before the fever. The blood was hemolyzed by the addition of saponin, and the parasites were seen moving in the centrifugalized deposit. He believes that the carrier of the protozoön is the louse of the Indian rat.

Diagnosis of trench fever is not especially difficult. The symptom by which it is usually disclosed is the "shin pain," a pain beginning in the external popliteal nerve and extending to the tibia. There are pains in the leg above, in the neck, and sometimes stiffness of the neck. It is easy to mistake trench fever for meningitis, influenza, and rheumatism, but the mistake is also one which ought to be easy to correct. As the disease is not fatal, nor even particularly disabling, it is always possible to wait and see. The question arises, after all: is it a new disease, or the rediscovery of an old one? As the paramount view of its cause is protozoal, like malaria, it seems fairly certain that the war has evolved a new form of morbidity. Most surgeons define it as a trench pyrexia, though some think the term a misnomer. The treatment is of the simplest kind—a blue pill and sodium salicylate, and, obviously, prevention lies in cleanliness.

#### THE CORRECTION OF VISUAL DEFECTS.

THE normal eye and normally acute vision are matters entirely relative, depending upon a variety of extrinsic circumstances. But they depend particularly upon the ability of the individual to make the most accurate interpretation of his visual perceptions, and the use to which the eyes are put. The standard of normally acute vision, 20/20, is an arbitrary one. To be

sure, most eyes conform to this standard, but there are normal eyes that focus parallel rays at greater distances, or at lesser ones. The increase in the use of lenses among the civilized peoples is no indication that civilization is accompanied by an increase in the amount of visual defects. It indicates, rather, that the more refined use of the eyes, in keeping with modern progress, necessitates commensurate visual aids. The usual visual requirements of the aboriginal races or of the cruder people do not require the aid of lenses with even relatively higher visual defects. The notion that aboriginal races have more acute vision than the civilized ones is not founded on fact. In their own environment and for their own necessities, they have learned to take advantage of every aid to their vision, usually by enlisting other senses and by learning to interpret their perceptions. On the contrary, the higher the development, the greater the need for good vision. As an illustration of the differences between the needs of the crude and the developed peoples in respect to vision, it must be remembered that the permissible limit of effective vision in the skilled worker ranges between .75 and .15. In the unskilled worker it ranges between .50 and .05. In other words, the skilled worker is practically blind when his vision falls to 1/7; the unskilled worker is practically blind only when his vision falls to 1/20. And yet the coarser the occupation the greater the distance of performance, but the less the visual acuity required in performance. All fine work, work requiring detail, is near work. It is in this work that refractive errors give the greatest trouble, and it is in this form of defect that the increasing amount of lense-wearing lies. This is undoubtedly the transitional stage, the metamorphosis from the crude requirements to the more refined, during which visual aids are required, at least until the physical visual development of the race has caught up with its mechanistic development. Aside from inability to do good work, with uncorrected refractive errors, the continual straining by the ocular muscles to get details into focus produces many physical but especially nervous disturbances. Except for the necessity of obtaining better vision for the better work done, there would be as little rise in the frequency of lense correction as among the less developed.

With the aid of various optical instruments—the ophthalmoscope, the retinoscope, the oph-

thalmometer, etc.—the objective examination of the eyes has been reduced to mathematical accuracy. Almost anyone, with the exception perhaps of one whose vision is grossly defective and uncorrectible, can become sufficiently familiar with these instruments to determine the exact optical or refractive error of a particular eye. It is in this ability to master the instrumental refraction of the eyes that the business of optometry has sprung up. It must be remembered, however, that with the eye, as elsewhere in the body, one does not deal with an isolated organ, nor with an inanimate mechanical contrivance, for which certain mechanical rules must be followed. In the correction of visual defects, the same understanding of the interrelation of all parts of the body, and the same use of judgment is required as in other pathological conditions. And it is, nevertheless, the general experience of oculists that those who need correction in order to do the most refined work, find their way to the oculist before long, if they have not done so at the beginning; and the work of the legitimate oculist is in no wise curtailed by the great number of optometrists.

While there are certain broad indications for the modification of the refractive findings, that apply everywhere, the refractive error of each individual must be corrected in accordance with his personal needs. In practice it is found that the result of the instrumental examination of the eye does not always coincide with the ability of the individual to accept such correction. Moreover, it is not always feasible to give a myope full correction, for fear that his myopia may be overestimated and a condition of pseudo-hyperopia be produced, with all its bad results; and the contrary is often true with the hyperope. The correction that gives the greatest degree of vision often causes a great deal of discomfort. As with all appliances, one must become accustomed to them before the greatest benefit accrues, and the highest speed or correction had best be postponed till such time. The highest degree of acuity must often be sacrificed for comfort. It is the purpose of correction to give the highest degree that the individual can accept, and not merely the mechanical neutralization of the optical apparatus.

In the last analysis no vision can be called defective unless it has been put to practical test and been found unable to do the work required of it. The visual concept depends for its com-

pleteness and accuracy on many extrinsic non-ocular precepts. As in other things, individuals must be trained to see—to get the most out of their visual capacity. Unless more vision is actually supplied without discomfort, or vision made more comfortable, a mere optical correction is valueless. A medical correction of the pathological cause and of the symptoms, rather than merely a mechanical neutralization of the optical error, such as the optometrists supply, is the aim of the scientific medical practitioner.

### SEASONAL CATARRHS.

THE colder seasons of the year are accompanied very often by three very common diseases, sometimes appearing in epidemic form of varying intensity,—influenza, pneumonia and cerebrospinal fever, besides the vague nasopharyngeal and respiratory conditions classed under the term, "common cold." Of the three diseases mentioned, all have certain features in common, which make their early differentiation less likely unless these similarities are borne in mind. They may all be of sudden onset; all locate the causative bacteria or agent in the nasopharynx; all are spread by droplet method of infection; and all have a "carrier" population of some magnitude, by which the condition is kept alive in a community, and whence epidemics originate. Of the three diseases, influenza is apparently the most common, although of the vaguest symptomatology. The bacteriological diagnosis of this disease is rarely made, probably because of the difficulty of isolating the bacillus of influenza, but particularly because the public does not consider the disease of sufficient importance or severity to warrant the effort in this regard. Severe attacks of influenza are usually considered complications rather than the expression of the disease itself. But influenza is important and serious, if for no other reason than that it is, perhaps, one of the largest factors in the spread of tuberculosis, either because the ever-present tubercle bacillus lives and develops better in symbiosis with the influenza bacillus, or because the general lowering of the vitality, the inordinate prostration, give the tubercle a better chance to develop.

While the bacteriology of all these diseases is fairly well established, it is rarely the subject of local investigation by the practitioner. A culture from the throat of every catarrhal case

would very early serve to differentiate the conditions, prevent the development of the disease, its spread to others, and anticipate complications or sequelae. The development of the serum and vaccine treatments of pneumonia and cerebrospinal fever urges another reason for the early differentiation of the nature of the particular catarrhal fever under observation. It must be remembered that not every infection with the meningococcus or the pneumococcus presents classic symptoms or pathological lesions. Nor do all persons having or harboring these germs present symptoms at all. But all of those who harbor them can act as the foci for the spread of the particular infection. The bacteria of any one of these diseases may cause symptoms usually ascribed to another. In the case of influenza, pneumonia and the pneumonic symptoms may be caused entirely by the influenza bacillus, without the operation of the pneumococcus. And meningeal symptoms are not uncommon in pneumococcus pneumonia, while the early symptoms of a severe and classic case of cerebrospinal fever, or even the entire course of a mild case, may simulate the symptoms commonly ascribed to influenza. Yet a swab from the nasopharynx clears up any doubt. Moreover, the pneumococcus, the meningococcus or the influenza bacillus can all simulate any of the other diseases, but unless early recognized may spread severe epidemics of the distinct disease causing these interchangeable symptoms. In the last influenza epidemic, in which there was so high a degree of pneumonia, much of the influenza complex was not really caused by the influenza bacillus, but by the pneumococcus. In other words, the pneumococcus may give only influenzal symptoms, and not pneumonic at all. As a result, what is called an influenza epidemic is really a pneumonia epidemic. It was, likewise, the experience of many observers during an ascendancy in the morbidity from cerebrospinal fever, that many cases of illness that had only a transient indisposition, perhaps only with mild catarrhal or "influenzal" symptoms, were infected with the meningococcus, and recovered without any of the serious classical symptoms of the disease. This was the experience in England among the troops billeted in many communities in the early part of the war, and before this circumstance was recognized. Cerebrospinal fever, early known as "troop disease," will present the same problem in our own

troop mobilization unless the lesson of England is learned. The time must now be at hand when every catarrhal condition will demand a swab and culture, just as almost every tonsillar condition demands it in the interest of the prevention of the spread of diphtheria. During seasonal epidemics there is an especially great opportunity of studying the bacteriology of the conditions vaguely called influenza, of separating them etiologically, of detecting and isolating "carriers," of instituting sensible quarantine, and in a general but comprehensive manner, contributing to the cause of preventive medicine.

#### ROLE OF INTERNAL SECRETION IN DIGESTIVE CONDITIONS.

RECENT experimental studies on the causation of gastric and duodenal ulcers have served to modify somewhat the theories previously held, namely, that gastric conditions could usually be traced entirely to intrinsic dietetic or digestive errors. While this is still true, the dynamic significance at least has been changed. The studies in internal secretion have uncovered a relation between the digestive tract and the endocrinous system. It is now found that disturbances in internal secretion, or rather in the function of the glands of internal secretion, adversely affect the vagus and the sympathetic, both of which are so largely concerned in the control of the digestive organs. Gastric and duodenal ulcers may be caused principally by disturbances in the thyroid and adrenal glands, and less directly by the disturbance of function of the other glands of this system. Gastric ulcer is usually associated with the adrenals, while duodenal ulcer is associated with the thyroid. The disturbance can be either an excess or deficiency of secretion. Extirpation experiments have produced, among other conditions, ulcers of the stomach or duodenum, according as one or the other of these glands was removed. It seems, moreover, that these two glands exercise an antagonistic control over each other in respect to the digestive apparatus over which they reign. Simultaneous overaction or underaction has no adverse effect, for there is in effect, then, a sort of neutralization of action. Only when one or the other is out of antagonistic control is there organic change. The uncontrolled overproduction of one of these glands acts as a

toxin which, circulating in the blood, irritates the nervous centers controlling gastric and intestinal functions. Gastric ulcer is associated with irritation of the vagus, while duodenal ulcer is associated with the sympathetic. Furthermore, adrenal disturbance is associated with the gastro-vagus function; thyroid disturbance with duodenal-sympathetic function. Toxic irritation of the associated nerve centers causes spasm of the blood vessels and ischemia of the tissue supplied, and then ulceration. In other words, the disturbance in the production of internal secretion acts adversely on the vegetative balance and then on the tissues.

These effects may be paralleled experimentally by the injection into the circulation of such drugs as pilocarpin, muscarin, physostigmin, on the one hand, and atropin on the other. As a further illustration of the association of digestive conditions and the products of internal secretion, it is found that the blood pictures in hyperthyroidism and of adrenalin hyperfunctionation are the same as in duodenal and gastric ulcers respectively. In the one there is polyglobula and relative eosinopenia; in the other there is mononucleosis and relative eosinophilia. Similarly there is found a relation between the sugar percentage of the blood in gastric and in duodenal ulcers, and in the respectively associated gland disturbances.

The knowledge thus far gleaned in respect to the relationship between hormone and digestion hardly solves the problem of any but this particular disturbance. The surface merely has been scratched. While the large number of obscure digestive conditions may be similarly inclined in their causation, it remains for the laboratory man and the clinician to discover this trend, and place gastroenterology on a more scientific basis. Yet it would be unfortunate if, in the quest of such scientific bases, the fact that unhygienic living and high pressure were basic causes of most digestive conditions, were overlooked. These are the vices that are undoubtedly at the bottom of the initial gland disturbance and are the cause of the loss of the vegetative balance. Hygienic and medical treatment is still unreplaced in the rational treatment of such disturbances, although organotherapy has driven a wedge into them. Whether organotherapy is to become the main reliance in the treatment of these conditions, as well as the many for which this form of therapy

is being urged, is too early to say, except that to the scientific mind in search of specific therapy this must appeal romantically.

### CARDIOVASCULAR PARASYPHILITIC AFFECTIONS.

SUCH nervous diseases as tabes dorsalis and general paresis are now almost universally accepted as being entirely of syphilitic origin. Indeed, when parasyphilitic diseases are spoken of, the nervous diseases are understood to be meant. Yet the most important, and perhaps the most frequent of the parasyphilitic affections are overlooked when the cardiovascular late effects of syphilis, either primary or hereditary, are not included in this category. The great rise in the degenerative diseases in modern times—in arterial, valvular and myocardial diseases—as against the fall in other diseases as a result of the strides in preventive medicine, while due in part to alcohol and strenuous living, must be associated with the increase in syphilitic affections in civilized communities. There is, however, no recorded proof of this rise, although the impression is universal. In the case of syphilis, and other so-called venereal affections, the lack of recorded evidence is due to the still generally loose statistical methods obtaining in many communities, but particularly to the hesitancy of reporting these diseases to the health authorities because of the stigma attached to them. Moreover, there are late manifestations of these degenerative conditions in the progeny of syphilitics, where, of course, the etiology of the conditions is not easily traced to syphilitic ancestry, without the most searching inquiry.

In the young and in the middle-aged, the number of cases of arteriosclerosis and aortic disease not due to syphilis, direct or hereditary, is negligible. Aortic disease is a more specific manifestation of syphilis than the more general condition known as arteriosclerosis, and it may more truly be called a parasyphilitic disease. Mitral disease, on the other hand, is a specific affection of rheumatic origin. In aortic disease, the Wassermann test is usually positive. But whether positive or not, antisyphilitic treatment, combined with appropriate cardiac treatment, is always beneficial. Perhaps the periodic treatment of these affections with mercury, the

iodides and salvarsan is as beneficial as the periodic treatment of mitral disease with alkalis and antirheumatics. It must be remembered, however, that while aortic and arteriosclerotic conditions in the young and in the middle-aged are associated with syphilis, the same significance cannot be applied to them when occurring in the aged. Neither the impression nor the treatment would be just to them. In the aged these conditions are due to senile degenerations, and treatment, therefore, must conform to the general treatment accorded to the senile state.

### MEDICAL NOTES.

**ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.**—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$250, will be made on July 14, 1918, providing that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the Secretary of the College on or before May 1, 1918.

Each essay must be sent without signature, but must be plainly marked with a motto, and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in the possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1917 has been awarded to Dr. Wilburt C. Davison, Baltimore, for his essay entitled, "The Superiority of Inoculations with Mixed Triple Vaccine (B. typhosus, B. paratyphosus A, and B. paratyphosus B) over Successive Inoculations with the Single Vaccines, as Shown by Agglutinin Curves in Men and Rabbits."

FRANCIS R. PACKARD, *Secretary*,  
19 South 22d Street, Philadelphia, Pa., U.S.A.

**HEALTH COMMISSIONER OF KANSAS CITY, MO.**—Dr. William Hall Coon, formerly of Wakefield, Mass., and lately executive officer of the Harvard Infantile Paralysis Commission, has received the appointment of health commissioner of Kansas City, Mo. Dr. Coon is a graduate of Harvard Medical School, class of 1895, and has

served in the Bellevue Hospital, New York, the Boston City Hospital, and the Northampton State Hospital. He was assistant surgeon in the army during the Spanish War, and at its conclusion established himself in practice in Lawrence, Mass. The late Governor Guild appointed him inspector of the Eighth (North Essex) Medical District, in which position he continued until 1915. He then resigned to associate himself with the Fisk Rubber Company of Springfield, and later the Infantile Paralysis Commission at Harvard.

**HOSPITAL ENDOWMENT.**—Mrs. Abigail E. Geissinger of Danville, Pa., has presented a memorial hospital costing \$600,000 to the city and has endowed it for \$1,000,000.

**APPOINTMENTS BY INDUSTRIAL ACCIDENT BOARDS.**—The following men have been appointed to the Medical Committee by the International Association of Industrial Accident Boards and Commissions: Dr. Francis D. Donoghue, Chairman, Medical Adviser, Massachusetts Industrial Accident Board, Room 272, State House, Boston, Mass.; Dr. W. H. White, Vice-Chairman, Chief Medical Examiner, Industrial Commission of Ohio, Columbus, O.; Dr. Frederick H. Thompson, Chief Medical Adviser, Industrial Accident Commission of Oregon, Salem, Oregon; Dr. B. S. Warren, Surgeon, U. S. Public Health Service, Medical Officer, U. S. Employees' Compensation Commission, Washington, D. C.; Dr. Oliver J. Fay, Medical Adviser, Workmen's Compensation Service of Iowa, State House, Des Moines, Ia. Dr. Raphael Lewy, Chief Medical Examiner, N. Y. State Industrial Commission, 230 Fifth Avenue, New York, N. Y.; Dr. P. B. Magnuson, Medical Director, Illinois State Industrial Board, City Hall Square Building, Chicago, Ill.; Dr. Charles H. Lemon, Medical Adviser to Wisconsin Industrial Commission, Milwaukee, Wis.; Dr. J. W. Mowell, Chief Medical Adviser, Industrial Insurance Department of Washington, Olympia, Wash.

### WAR NOTES.

**A NEW ANESTHETIC.**—Report is received of a new anesthetic which is being used with much success on the European battlefield. It is called nikalgin, and is composed of quinine, hydrochloric acid and urea. Dr. Gordon Edwards, of Leland Stanford University, who has been a member of the American Ambulance Hospital Corps in Paris, has introduced it, and it is being used in both the French and British hospitals with favorable results. Many of the soldiers are provided with small quantities to carry in their first-aid kits. The action of nikalgin in relieving pain in exposed surfaces in wounds is absolute, and a local anesthesia is produced

which lasts about three hours. The application may be renewed without harmful effects.

**EXEMPTION OF DENTAL STUDENTS.**—Provost Marshal General Crowder has directed Governor McCall to grant the same privileges to dental students that medical students now possess under paragraph 2, ruling 11. The paragraph reads as follows:

"A hospital interne who is a graduate of a well-recognized medical school or a medical student in his fourth, third or second year in any well-recognized medical school, who has been called by a board and physically examined and accepted, and by or in behalf of whom no claim for exemption or discharge is pending, who has not been ordered to military duty, may apply to the Surgeon-General of the Army to be ordered to report at once to a local board for military duty, and thus be inducted into the military service of the United States, immediately thereupon to be discharged from the national army for the purpose of enlisting in the enlisted reserve corps of the medical department."

**MEDICAL CORPS LIEUTENANT WOUNDED.**—During an air raid on the night of September 24, First Lieutenant Howard F. Keating of Philadelphia, Medical Corps, U. S. A., was slightly wounded.

**APPOINTMENT OF ALEXANDER HAMILTON RICE.** It is announced that Dr. Alexander Hamilton Rice, noted as an explorer and scientist, has been commissioned senior lieutenant in the United States Naval Reserve force, and has been appointed a member of the faculty at the cadet school at Newport, R. I. He will have charge of the teaching of astronomy and navigation.

**IN THE INTERESTS OF THE WAR CRIPPLE.**—Delegates from nine of the allied countries gathered in London on October 9 to make plans for post-war treatment of soldiers permanently disabled in war. The American delegates were Colonel Birmingham, Major R. B. Osgood, Dr. Veditz and Miss Grace Harper.

**APPOINTMENTS IN ASSOCIATION OF MILITARY SURGEONS.**—At the convention of the Association of Military Surgeons, held at Ft. Benjamin Harrison, Dr. George A. Lung, medical director of the United States Navy, was elected president, Col. Edward Munson was reelected secretary, and Assistant Surgeon-General W. Colby Rucker of the United States Public Health Service was named treasurer. The organization of an association of presidents of examining boards of the Medical Reserve Corps was begun, and will be completed at the next convention, to be held in Chicago, October 22.

**WAR RELIEF OF ROCKEFELLER FOUNDATION.**—The recently published report of the Rockefeller Foundation states that during the year 1916 the following sums were given for war relief work:

The principal work of the Foundation was divided among the War Relief Commission, with expenditures of \$966,667; the International Health Board, \$505,900; and the China Medical Board, \$549,558.

The following items are included in the expenditures for war relief: Armenian and Syrian relief, \$490,000; Belgian relief, \$30,000; International Committee of Young Men's Christian Associations, \$295,000; Polish relief, \$25,531.32; prisoners of war, welfare work, \$378; Serbian relief, \$59,562.72; Turkish relief (American Red Cross), \$25,000.

**COLUMBIA UNIVERSITY WAR HOSPITAL.**—A war hospital of five hundred bed capacity, which was begun by Columbia University on April 2, has been completed and opened by Dr. Nicholas Murray Butler. The government has accepted the hospital, and it will be named United States General Hospital No. 1. It consists of fifty-four wooden buildings, covering fourteen acres, and includes kitchen, reception ward, laundry, laboratory, pharmacy, dispensary, operating rooms and wards. A staff of twenty surgeons and doctors and seventy-five nurses will be in charge to receive and care for wounded soldiers from overseas as it now cares for soldiers disabled by sickness and accident. The buildings are single story, metal and frame structures, according to the design of a regulation field hospital, and although they are built solidly enough for permanent location here, they can be taken apart and transported elsewhere if desirable.

**WAR RELIEF FUNDS.**—On October 20 the totals of two of the principal New England war relief funds reached the following amounts:

Armenian Fund .....	\$238,745.54
Italian Fund .....	50,300.44

#### BOSTON AND MASSACHUSETTS.

**SPRINGFIELD ACADEMY OF MEDICINE.**—The October meeting was held at 137½ State Street, Springfield, on Tuesday evening, October 16 Dr. William Muhlberg of Cincinnati spoke of "The Doctor and the Insurance Company."

**ENLARGEMENT OF TUFTS MEDICAL SCHOOL.**—One section of the new building at Tufts Medical School has been completed in time to admit the entering classes, which, this year, include the premedical students. The medical course

has been lengthened by two years, in accordance with the requirements of the American Medical Association. The new building contains three stories and basement, and is built of reinforced concrete throughout. The first and second floors are arranged for classroom use, and the third story will be devoted to classes in dissecting and operating. Registration in the medical school compares favorably with figures of past years.

**MASSACHUSETTS WOMEN'S HOSPITAL.**—Wednesday, October 17, was held as donation day by the Massachusetts Women's Hospital, Parker Hill Avenue, Roxbury. The officers of the Hospital received members and friends in the afternoon. Mrs. William A. White of 249 Warren Street, Roxbury, treasurer, will receive what additional gifts of money or articles as may be sent.

**WEEK'S DEATH RATE IN BOSTON.**—During the week ending October 13, the number of deaths reported was 236, against 218 last year, with a rate of 15.59, against 14.95 last year. There were 26 deaths under one year of age, against 34 last year.

The number of cases of principal reportable diseases was diphtheria, 71; scarlet fever, 24; measles, 25; whooping cough, 7; typhoid fever, 2; tuberculosis, 43.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever, 12; measles, 1; tuberculosis, 6.

Total deaths from these diseases were: diphtheria, 4; scarlet fever, 2; tuberculosis, 20.

Included in the above were the following non-residents: diphtheria, 2; scarlet fever, 1; tuberculosis, 1.

**BABY HYGIENE ASSOCIATION.**—Mrs. Lenah Austin Smith, who has been superintendent of nurses of the Baby Hygiene Association, has resigned, and Miss Winifred Rand of Lincoln House has been appointed her successor.

Dr. J. Herbert Young, director of the Association, will be its representative at the eighth annual meeting of the American Association for Study and Prevention of Infant Mortality, to be held in Richmond, Va., October 15-17.

**HAMPDEN DISTRICT MEDICAL SOCIETY.**—The regular fall meeting of the Society was held at Hotel Worthy, Springfield, Mass., on Tuesday, Oct. 23, 1917, at 4.15 P.M.

Paper for the afternoon: "An Informal Talk on Medical Aspects of the War," Dr. John Bapst Blake of Boston. Dr. Blake is the Chairman, Massachusetts State Committee for National Defense.

Censors meet to examine candidates for admission to the Society at Worthy Hotel on Thursday, Nov. 1, 1917, at 4 P.M.

HERVEY L. SMITH, *Secretary and Treasurer.*

## The Massachusetts Medical Society.

### NOTES TAKEN AT A HEARING BEFORE THE SPECIAL COMMISSION ON SOCIAL INSURANCE AT THE STATE HOUSE, BOSTON, SEPTEMBER 26, 1917.\*

**CHAIRMAN:** We will resume our hearing on the subject of health insurance, and we have requested the physicians and surgeons to come before us this morning and state what they would like to say in regard to this matter.

**DR. A. K. STONE:** The notice your secretary sent was that you would give a hearing to the physicians, and especially to the Massachusetts Medical Society. There is no one able to speak for the Society as one person. It is a body of about 3500 members; a number are here today, and would like to address you, but they will give their own personal opinion and not that of the Society.

I would like to say to the Commission that the medical profession is perhaps more shot through at the present time than any other group of men. Boston alone has three units in France at the present time, and there are two more that are awaiting orders to go. There are a large number of regimental officers throughout the State; others have gone to the base hospital cantonments throughout the country, and it is very difficult to get special interest in social insurance at the present hour because of calls upon the medical profession to do extra work for the men that have gone to some service in the State.

I would suggest as the first speaker, Dr. Samuel B. Woodward, of Worcester, who is president of the Massachusetts Medical Society, and in going up and down through the State, he has, perhaps, been able to test the temper of the physicians, and perhaps can give you some information along that special line.

**DR. SAMUEL B. WOODWARD, Worcester:** I wish to congratulate the State of Massachusetts on one thing: that is, that it is willing, not only to fight the Kaiser and revise its constitution, but it is willing to consider one of the most revolutionary things,—health insurance. I cannot express any opinion for the Massachusetts Medical Society. We have gone into the matter; we had a special meeting of our council last year, and as far as we can get with our knowledge,—which we do not think is sufficient for a conclusion,—is to urge delay in consideration.

It does happen that in the course of my duties, I have to go through the State, to the various districts of the Massachusetts Medical Society,—rather a walking delegate,—and in the past year I have been in every part of Massachusetts—from Greenfield to the tip of the Cape—and I have made it my business to inquire the opinion of the physicians as regards instituting health insurance, and I think I can truthfully say that, with very few exceptions, I found nobody in favor of it among the physicians.

I have also done another thing. I live in Worcester. I have inquired of the various representatives of organizations there that are interested in public charities, and I have been rather surprised at the result. First, I went to the District Nursing

\* The remarks of other physicians at this meeting will appear in a subsequent issue of the JOURNAL.

Association,—an association which has been in existence there twelve years. They employ eighteen nurses and make several thousand calls a month. I was surprised to have the agent come out flat foot with the statement that she did not think health insurance was needed in Worcester as a community thing. The agent of the Associated Charities, who has been there a good many years, couldn't make up her mind as to whether the thing ought to be done or not. One agent of the Society for the Prevention of Cruelty to Children (of which I happen to be president) didn't see a call for it. The agent at the Temporary Home didn't know anything about it. That is the result in Worcester.

I cannot say anything more for the Massachusetts Medical Society than that we are looking into the subject just as you are; it is a tremendous thing. I have yet to be convinced, and I have done a certain amount of reading, that the countries where it is in service,—particularly in Germany,—have found it a success. If it were a success in Germany, I should not believe it would be a success necessarily in Massachusetts. We are not Germans; we cannot be fed out of a spoon, as they seem to like to be. That is my individual opinion.

DR. STONE: Dr. Howland of the Massachusetts General Hospital has come down to say something about the extent that the out-door clinics are used. He is the acting superintendent of the Massachusetts General Hospital, and they have a large out-patient department there.

DR. JOSEPH B. HOWLAND, of the Massachusetts General Hospital: I don't know that I know just exactly what you want me to say to you, but our Out-Patient Department last year had about 200,000 visits. Of those, 31,000 were different individuals. About 14,000 were adult men, 10,000 women, and 6000 children under 12 years of age. That gives you an idea of about the way the department serves the community.

REP. GREENWOOD: How far do you go with those patients?

Ans. If we once accept a patient, we continue with him as an out-patient if he is able to go back and forth to his home; if not, we recommend him for admission to the hospital, and, if possible, accept him in the hospital.

REP. GREENWOOD: Isn't it a fact that you recommend them just as far as possible to a physician outside the hospital?

Ans. It is not the practice of the hospital. There may come there those who seem suited to go to a physician; but as a matter of fact we usually encourage the people to have their own doctor send them, which establishes the status of the patient.

REP. GREENWOOD: In the case of a man who has some serious trouble, do you look into his financial standing, and if he is able to pay, send him back to his own doctor?

Ans. Yes.

REP. GREENWOOD: Supposing he isn't satisfied with his own doctor; or perhaps he hasn't any; he comes on his own hook and is really an out-patient?

Ans. If he is in our opinion financially able to take care of it, we would not take him; but if he has no doctor and wants to go to one of our doctors, we let him pick out the one he wants to go to.

REP. GREENWOOD: How would you regard the extension of this system of medicine by dispensaries or anything of that kind?

Ans. I do not feel competent to pass on social insurance; I have not gone into it.

REP. GREENWOOD: I was questioning whether, if it is good for Boston under your institution, further dispensaries would be advantageous to the people and not unfair to the physicians?

Ans. I think a good dispensary anywhere is very good. It would do about the same work we do. They are a help to the medical profession. We often take the patients in to help the doctor to get straight on his diagnosis because of the facilities we have.

SEN. WASHBURN: You have within reach of your hospital the most eminent medical talent in the State?

Ans. We have as good as there are.

SEN. WASHBURN: Suppose a man comes to your hospital and you sound his solvency and find he has a little too much money to stay there, then he is sent away?

Ans. Yes, sir.

SEN. WASHBURN: And yet you may be sending away a man who, if he could stay in your hospital, would have the advantage of having the most eminent talent, and yet can't buy the best outside?

Ans. Yes, sir.

SEN. WASHBURN: Can you devise any way to get round that evil, and any way that health can be within the reach of a man of modest resources?

Ans. We are providing pretty well, we think, for those who cannot afford eminent people, and we hope to have a ward for those who cannot afford the best. It is a rule that no doctor can take a fee of any kind for work in our wards. We have it in mind that perhaps patients may pay comparatively small fees for our care and yet pay small fees to our physicians; that is not brought about yet. We have not made much progress in that yet, but perhaps it is progress to have it in mind all the time.

CHAIRMAN WILSON: You spoke of 200,000 visits annually, or 31,000 individuals. Have you any figures showing what proportion of that number come from Boston,—from within the confines of the city itself?

Ans. Yes, we have some, but I haven't them with me.

REP. GREENWOOD: You don't restrict them to Boston?

Ans. We make no restrictions in our Out-Patient Department. Many of them come from the Provinces.

CHAIRMAN WILSON: You receive some money from the State?

Ans. No, we receive no money from the City, County, or State; have not since 1817, at which time a house was given us. We have had no State aid since then.

CHAIRMAN WILSON: Do you think it would help if the State should establish State Dispensaries, under the Department of Health, for instance?

Ans. I haven't thought the matter over enough to care to state an opinion.

SEN. GREENWOOD: You charge a small fee?

Ans. Yes, twenty-five cents for adults. If they are not able to pay, we accept them just the same, for nothing.

REP. FROTHINGHAM: You have a good many who

can pay, but try to give the impression they haven't any money when they really have?

*Ans.* We have a good many of them because they want the best, not because they want to beat the medical profession. We have some who want to get something for nothing, but are able to pay. So far as possible, we rule them out.

Dr. STONE: I am going to ask Dr. Mongan of Somerville, who has given this subject a great deal of study, to speak to you now.

Dr. CHARLES E. MONGAN, Somerville: In the first place, I have no hostile spirit whatever, and it is very clear in my mind why I am here. I represent the Somerville Medical Society, which is opposed to any health insurance measure at this time. And to enlighten Senator Washburn, I will say that I am a member of the committee of 23 of the Massachusetts Medical Society, which committee was called into existence by vote of the council for the purpose of studying health insurance,—social insurance. I have one request to make of the Commission: That I shall not be interrupted by any question until I have finished.

Social insurance, health insurance,—whatever you may term it,—is a broad question, and is one of those questions that have come into our social existence from across the water; and I wish you to understand that health insurance, compulsory or non-compulsory, is only one part. There are three other parts: Invalidity insurance, insurance of the unemployed, and old-age pension. One of the most enthusiastic promoters of social insurance said that it was the intention of the gentlemen who were behind the scheme that after health insurance had been put on the statute books, to ask for invalidity insurance, insurance of the unemployed, and old-age pension; and you can't divorce any one of these things from the other—if you must have one of these things you must have the rest. That is the question,—the broad proposition: Whether or no Massachusetts wishes to embark on such a proposition.

And as to the other question: Whether or no there is any necessity for it, compulsory or non-compulsory,—“who says there is?” There is no society, lay or otherwise, that has demanded it in Massachusetts. Whence comes it? From the office of that society which places those books upon your table: [Dr. Mongan referred to copies of a publication that had been placed on the table in front of the chair of each Commissioner. This publication was issued by the American Association for Labor Legislation, an international association which has branches in 16 different countries, has headquarters at Basle, Switzerland. The officers of this association say that the object of the association is the standardization of labor laws in all countries. It is an association outside the Government, working to pass laws; it is a purely German invention, based upon the German genius of civilization.]

Now let me read a quotation from an article in the *Yale Review*, by Professor Hadley, on “The Political Teachings of Treitschke.” The article appears in the January number, 1915. Treitschke says: “Every civilized state is an aristocracy. If its political constitution is democratic, it arranges some sort of aristocracy outside of its constitution to manage its affairs.” So, you see, the United

States was to be standardized before the periscope of the Kaiser's submarine appeared off Sandy Hook.

The germ of health insurance came from Russia. In 1806 the Czar issued an order compelling factories employing a thousand men and over to have a doctor. In 1866 this idea was made more comprehensive, and factories employing five hundred or more were compelled to employ doctors, and even obstetric hospitals were founded in connection with manufacturing establishments. Germany adopted social insurance as a political measure, at the instance of the Socialist, and as a sop to the Socialists. What are the conditions in Germany? You have a homogeneous race, speaking one language, one fountain-head from which all laws come,—65,000,000 people thinking in one way about all things. It was for the interest of the empire that the health of the people should be cared for by the government. In all those countries which have compulsory health insurance, the individual is submerged; these countries are monarchies or great autocracies. We have heard nothing of compulsory health insurance in France or Switzerland,—countries that correspond more to the United States, where the individual does amount to something.

What are the conditions that called for compulsory health insurance in Germany? Mr. Gerard, in his recent article on Germany, said that 55% of the families of the wage-earners of Berlin live in one room. I will venture to say that among the wage-earners who are employed in that great establishment in Cambridge over which one of the honorable members of this commission presides, of all those wage-earners, there is not one family that lives in one room.

Again let me read concerning hearings before the Committee on Ways and Means of the National House of Representatives, in 1913; this is the testimony of a delegate to the International Glass Blowers Convention, which had been held in Europe shortly before: “I am quite sure that I cannot use language that would render you sensitive to the vast difference in the conditions prevailing in Germany as compared with those prevailing in our country, principally as it applies to child labor. In certain cases men own or rent a little farm, and may live from 5 to 10 miles from the factory in which they are employed. They walk to the factory on Sunday night, and sleep and eat at the factory each day and night during the week, returning to their homes on Saturday night.” Contrast that condition with conditions in Massachusetts, where, if the savings contained in the savings banks, and in the savings departments of trust companies, and in the coöperative banks were equally divided, there would be for every man, woman and child \$300.00. In a report issued by the Boston Chamber of Commerce recently, it was stated that if the wealth of Boston was equally divided among its inhabitants, there would be for each inhabitant, over \$2000—the highest per capita wealth of any city in the United States. Massachusetts is a highly civilized and highly developed commonwealth.

This is a highly civilized and developed commonwealth, which does not show, as far as we have been able to see as medical men, that there is any need of compulsory health insurance if we are to live up to the teachings of the Constitution,—that this country is made up of individuals. We

are told by the insurance companies that there is a certain amount of sickness in the United States, and we have come here, as members of the community, to help you. You ask us what we have to offer. We tell you that we are studying the question, and it is so enormous and has so many aspects that it will be impossible for any community to say what would be a proper bill and what would not be a proper bill, and whether you want a bill or not.

You had here last week a gentleman from Worcester, Mr. Dresser, and Mr. Dresser, I think, falls into the same notion that perhaps my friend from Worcester did, as I gathered from his questions, as to the term *preventive medicine*. The physician means by *preventive medicine* all those means and ways by which disease can be eliminated or arrested. Under health insurance, Germany has not improved or progressed as far as the United States in preventive medicine. I was surprised in reading Mr. Dresser's remarks, that he did not know that. The United States leads the world in preventive medicine; and I do not hesitate to state that Massachusetts leads the United States. All the rules about health came from the medical profession, and yet Mr. Dresser said we were not organized. We were not disorganized when we told you about tuberculosis, about sanitation, about pure food laws, etc. The members of our Society have always looked into these matters, have gone to Boards of Health and to the Legislature; and to the honor of Massachusetts it took the advice of the medical men, and has placed upon its statute book laws which provide for the care of the health of the citizens, and thus disease has been prevented. In consequence of these deeds, doctors have not been on the increase, but the decrease. It is said that there are not enough doctors to respond to the call of the National Government for medical men. The reason is the elimination of disease. The Medical School is the only school connected with Harvard University that has shown in the past a falling off in membership.

In regard to factory sanitation, Mr. Dresser gave you a very elaborate description of what was done in the Norton Grinding Company, but he forgot to tell you there was another side to that question; there are some questions that are asked when an employee goes to the Norton Grinding Company. One question is, "What is your age?" Dr. Clark tells of it in an article on factory inspection in the A. M. A. journal. If a man is 45 years of age, he is arbitrarily rejected. In other words, he is industrially dead at 45. Compulsory health insurance means compulsory physical examination, and the employer will demand, as he should demand, a perfect man if he can find him. The Norton Company is not the only company that sets an age limit and compulsory physical examination. The laboring man tells you he objects to being junked at 45 or 50. A man is refused work in a factory because he is 45 years old and is industrially dead. Let us see how that works out. The day he receives this information, his boy at the age of 18, who has passed successfully his examinations for admission to the technical school of which one of the members of this Commission is trustee, and has been told that he will be admitted to the freshman class, goes home in great joy to tell his parents of his success, only to find when he has entered that home that his father is industrially dead; and the education that the boy looked for-

ward to, and set his soul upon, will be denied him, for he must forthwith take the place of his industrially dead father, and go to work in order that he may contribute to the support of the family.

Those are some of the reasons we ask you to consider, and go slowly. Those are some of the reasons why we ask you to think seriously over this question. We also ask you to consider and investigate whether we have not means of alleviating what sickness there is, and we will ask you to investigate every public hospital in Massachusetts. As business men and doctors, investigate in every way before you come to a conclusion. Make it a friendly investigation. We ask you to use your ability as leaders of industry to find out the cost of maintaining those institutions; go all through the cost of supplies, etc. It is your duty, before you report any bill, to investigate every possible aspect of this question. We want you to see if you cannot devise a means of relieving distress or sickness, without interfering with or confiscating anybody's means of livelihood or putting on the State an enormous cost that will be more than they realize. I realize more and more, as I study it, the deep problem that you men have to consider; and I realize, too, that it can't be settled by any figures that you take from Germany, or Switzerland, or France, or England. England has more slums, more ill-fed, more underpaid workmen than any civilized country in Christendom. You have got to settle the question by what Massachusetts demands and what Massachusetts needs.

There have been many suggestions given you today or in previous times, which have been termed constructive. We have been asked what we had to offer in a constructive way. Gentlemen, it is all foolish to construct when we don't know the basis of the foundation on which we are to put the superstructure. The Commission of last year could not agree upon any report. Now there isn't any constructive legislation that I know of; we are simply groping in the dark; but if this Commission thinks that Massachusetts should be committed to health insurance, if the State should take the part of caring for the health of its inhabitants, then I say, take the short cut, and proper way; and the proper way will be for the State, if you decide that it is to take over the care of the people of the Commonwealth, to do it in the same way as you offer police protection, and protection from fire, and it won't cost so much—let all the citizens come under it. The United States educates the officers of its army and navy; in the same way the state of Massachusetts can establish medical schools and examine every candidate, who will be free to come, mentally and physically, and then nobody will have the right to practise medicine or surgery unless under the rigid supervision of the proper authorities, and the most expert advice will be within the reach of the richest and the poorest in the Commonwealth.

There is another means that has been hinted at by Mr. Dresser: that is the establishment of stations in various parts of the community, under the supervision of the board of health. If the board of health were a state board and appointed by the governor, or perhaps elected by the people, and had full power over the whole State, and control of all conditions pertaining to the health and sanitation of the State, you might be able to devise a measure that would relieve any shortcomings that are said now to exist; but in looking over the statistics that have been brought to you by insurance companies,

you must remember how they are collected. They are collected by laymen and not by doctors. The Metropolitan Life Insurance Company is conducting a health survey along scientific lines at Framingham, and it is said that it will take from three to five years to complete the survey, and that it will cost \$100,000.

I haven't anything further to contribute, except this: that this committee, on the part of the Massachusetts Medical Society, is willing and anxious to help to solve any medical problem that can be proven to exist in Massachusetts. It will give you any information and aid you in any way possible.

SENATOR BROWN: You say your association will help along the lines that this Commission is seeking. Last year, I understand, you appeared before a similar commission. What has your society done within the twelve months?

Ans. It hasn't been twelve months since we appeared. We appeared before your Commission on the 8th day of December, and we asked the Commission then to allow us time to investigate this subject. We were very well received, but the Commission took no notice of our request. Since then, we appointed a committee of 23, which is investigating this subject. Most of us are very busy men and work as we are able to through the societies to get what data we can. We say frankly that we haven't gone on very far in getting data, because we have not been able to organize in the way we would like; such an investigation would cost between \$10,000 and \$5,000. The Council of the Medical Society appropriated \$5000 for the use of the committee of 23.

REP. GREENWOOD: Would your board feel warranted in taking any general action before bringing it before the general society?

Ans. No, and not without further knowledge. This came on the medical profession rather suddenly, and previous to November, 1916, I don't believe we knew much about health legislation.

REP. GREENWOOD: What do you think of the dispensary proposition? If they were run properly and under the absolute control of proper authorities and were perfectly equipped, what would be the effect on the communities and the physicians?

Ans. That is a rather general statement.

REP. GREENWOOD: There would be conditions in almost any fair-sized city where such stations might be established, so some people who are really suffering from the want of medical aid might receive attention at less expense, just as they do at the Massachusetts General and the North End Dispensary.

Ans. I think the greatest expense to such comes in getting special diagnoses, laboratory work, x-rays, etc. There could be stations where anybody would be free to go and get such help; or if he so desired, he could patronize anybody outside. I think the great benefit would come to the doctor: it would be a place where he could go for aid in diagnosis when a case is obscure; instead of asking patients to come to the hospitals situated in large cities, where on account of conditions intensive study cannot be given to every case.

REP. GREENWOOD: Couldn't they extend the psychopathic work that is now being done, and hold clinics in different parts of the State, and so reach those who cannot come to the Fenway? It seems to me it might be very helpful and preventive.

Ans. Yes.

MR. MORSS: You don't believe in compulsory health insurance?

Ans. No. We have been giving you what no other profession gives. We tell you what you may do so that you may keep well, and thus we try to eliminate disease. We have been telling that for years, so that now there are fewer doctors in proportion to the population than there were fifteen years ago. We are all striving for perfection. We strive for perfection in medicine as you do in industry.

You want, first, to make sure that the things you propose to correct, exist. I would rather assume that they do not exist until it is proved that they do. There is no need of legislation such as was proposed last year.

MR. MORSS: You haven't any legislation to propose?

Ans. If the Commission decide there is need for legislation, then I am willing to sit down and talk it over. I want to be shown before the Commonwealth is saddled with an expense that is greater than she spends now for public education. The proponents say it will cost twenty-four million; public education in Massachusetts costs twenty-two million. If it is needed, I will be an enthusiastic citizen and help put it through.

REP. GREENWOOD: There is some indication that the psychopathic proposition has developed or discovered a need in the community; it is a new revelation.

Ans. We can eliminate that by saying that the study of insanity done in connection with the psychopathic hospital gives evidence of great promise for the future. I think the study of diseases of the mind, as is now being conducted by the alienist, is bound to change our notion of mental diseases, and in a few years, as the result of these studies, I think we will have an entirely new procedure in regard to the insane; and our treatment of the imbecile, feeble-minded, and the criminal will undergo radical changes.

SENATOR BROWN: Isn't it a fact that in these insane hospitals there is very little medicine given the patient?

Ans. Any medicine given in any hospital by any physician is given only when there is a definite need for it. There are drug treatments, baths, rest, and dietetic treatments. Physicians are not tied down to the use of drugs for the care of the insane, but it is called medical care whatever the treatment may be. Very little drugs may be used.

In answer to a question from Rep. Washburn, Dr. Mongan stated that he was a member of the committee of 23 of the Massachusetts Medical Society to study the matter of health insurance, appointed by the Council, which is the governing body of the Society. Each district was to have a representative on the committee. The committee made a partial report in June, simply on organization. The next report will be made at the meeting of the Council in October. The Society has taken no official action on the subject of social insurance. It is simply studying the matter, like the Commission.

REP. GREENWOOD: Will your report probably be complete enough in October to give us a statement of their attitude?

Ans. I don't think so; not much before December.

In answer to Chairman Wilson's question as to

whether he had any idea how the bill was working in England, Dr. Mongan said:

A recent letter in the *Journal of the American Medical Association* said that many there were for and many against it; they didn't actually know whether it was working well or not. It has not cleaned up the slums. It has also put a lot of detail on the doctor, who has to make numerous reports. Everybody who is sick is catalogued.

MR. WASHBURN: Are you a general practitioner?

Ans. Yes. I practise in Somerville. I am one of the visiting physicians of the Somerville Hospital.

P. S.—Since this hearing was held, a report comes from England that Lloyd George says this is no time to discuss health insurance.

## NOTES FROM THE DISTRICT SOCIETIES.

### DISTRICT CORRESPONDENTS.

*Berkshire*, A. P. MERRILL, M.D., Pittsfield.  
*Bristol North*, ARTHUR R. CRANDELL, M.D., Taunton.  
*Bristol South*, EDWIN D. GARDNER, M.D., New Bedford.  
*Essex North*, T. N. STONE, M.D., Haverhill.  
*Essex South*, H. P. BENNETT, M.D., Lynn.  
*Hampden*, LAURENCE D. CHAPIN, M.D., Springfield.  
*Hampshire*, E. E. THOMAS, M.D., Northampton.  
*Middlesex South*, WILLIAM C. HANSON, M.D., Belmont.

### ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—

The first regular meeting of the Essex South District Medical Society was held October 2 at the Salem Club, Salem. Dr. Edw. H. Risley, Boston, was the guest of the evening, and he gave a very interesting talk on "The Modern Treatment of Burns, with Especial Reference to the Use of Ambrine and Similar Preparations." Dr. Walter P. Bowers of the State Board of Registration in Medicine, and remembered as a welcome visitor when he was president of the State Society, was also a guest. Dr. Bowers spoke briefly in regard to the need of physicians informing themselves in regard to the pending health insurance legislation.

The Special Commission on Social Insurance will hold a public hearing in Lynn, Oct. 25, at 7.30 p.m., in the Council Chamber at City Hall. "Health Insurance" will be the topic of the hearing. Physicians of the District would do well to attend this hearing. The Censors of the Essex South District will be at the Salem Hospital Thursday, Nov. 1, at 3 p.m. Any of the members knowing desirable candidates should put them in touch with the Secretary at least a week before the meeting.

H. P. BENNETT, Secretary.

## Obituary.

### GEORGE PLUMMER HOWE, M.D. 1878-1917.

THE death of DR. GEORGE P. HOWE, on September 28, 1917, on the field of Mars, carries with it the distinction of being the first graduate of the Harvard Medical School, the first alumnus of the Boston City Hospital, and the first Boston physician to be sacrificed in the devastating war now raging.

In the career of Dr. Howe, there were two predominant motives or root ideas that swayed his conduct of life. One was his desire to be useful to mankind, the other his insatiable longing for adventure. The former held in restraint the latter, thereby leading him to the practice of medicine. The second, when unfettered, irresistibly drove him to fields of exploration.

Almost immediately after he had finished his service as house pupil at the Boston City Hospital, he signed on as surgeon of the Anglo-American Arctic expedition, and in company with the distinguished Arctic explorer Stefansson, spent a year in the Polar regions. When he came home from this voyage, he began the practice of medicine in Lawrence. It was not long after his return, however, before he was again flirting with the siren of travel. This time, she led him on the W. B. Cabot expedition to the interior of Labrador. When he came back from this journey, he became connected with the Peabody Museum of Anthropology, and subsequently led his own expedition to Yucatan for the purpose of investigating Maya culture. When he returned home this time, he married Miss Marion Dudley Endicott, and soon after began to specialize in dermatology in Boston.

Endowed with perfect health, and possessing a physique as tough as old hickory, he was by nature fitted to sail the "Seven Seas." In tastes and thought, he was a citizen of the world. In manner, he was retiring, at times being as silent as an Indian and as deliberate as a lawyer's brief. He had a keen judgment, which made him an able and helpful critic. As an authority on Arctic matters, he stood high. He was an omnivorous reader, with a retentive memory. His conversation was illuminated by a dry humor and his thoughts seemed to come from an inexhaustible reservoir of information. He could talk intelligently and entertainingly on almost any topic, from the blending of Turkish tobacco to an abstract problem of navigation. He could tell an after-dinner story to the merriment of all present. His activities led him to take up as a hobby, at one time wrestling, at another time the invention of an automatic pistol.

His modesty prevented him, much to his own loss, from using the trumpet and drum to herald

his exploits. Glamour never attracted him, and he would never cater to the gallery.

Though aristocratic in tendency, he was essentially gregarious, loved club life and animation. In brief, he was a delightful, dashing companion.

He was eminently suited for the vocation of medicine, having been born and reared in a professional atmosphere, and later trained in this great center of medical education.

As an assistant, he was able and faithful in his work, never shirked the routine duties to be found in a large metropolitan clinic. Kind and honest with his patients, he looked upon the privilege of helping them as the luxury of usefulness. At the time of his death, he was assistant in the department of diseases of the skin at the Boston City Hospital and the Carney Hospital. He held membership in the New England Society for Dermatology and Syphilis, in the Massachusetts Medical Society, in the American Medical Association, and was a member of Chapter 1904 of the Æsculapian Club of the Harvard Medical School.

He had an unbounded admiration for the German military machine and was a close student of the war and its strategy. This interest led him, about a year and a half before the United States declared war on Germany, to signify his intention of "getting into the fight" if this should occur, and in anticipation of this event, he joined the first Plattsburg training school.

About the latter part of May of this year, he received his commission as a member of the Officers' Medical Reserve Corps. Later in the month he sailed on the steamer *Mongolian*, detailed by the United States army to the British forces. After serving for a while in Field Ambulance No. 48, in the Ypres Sector, he was eventually assigned to duty as Battalion Medical Officer to the Tenth Battalion of the Royal Fusiliers, stationed "somewhere" at the front in Flanders.

He found his last exploit set in an environment in perfect accord with his ideas of life, dying the way he had lived, in the midst of adventure, useful to the last. His saddened friends may well envy this glorious termination of his career. *Pax vobiscum.*

TOWNSEND W. THORNDIKE.

### Miscellany.

#### RESOLUTIONS.

At the semi-annual meeting of the Middlesex South District Medical Society, the following resolutions, presented by Dr. Arthur N. Makechnie of Cambridge, were unanimously adopted:

Whereas, Some of the daily papers of Boston

have severely criticized the physicians who were appointed to examine for the Exemption Boards,

*Resolved*, That we, members of the Middlesex South District Medical Society, feel that some notice should be taken of this, as the criticism was very unjust. We feel that the following facts should be stated:

1. The instructions specified that if there was any doubt about a case, it was to be sent along.

2. The Government did not supply those different means of diagnosis which are used in private practice and are at the command of the army doctors. For example, the Wassermann test for venereal disease and sputum examination for tuberculosis.

3. They also had instructions to send along most cases of venereal disease, to be passed upon later.

4. The Government ordered 10% surplus to be sent, expecting that number to be rejected, which accounts for the shrinkage that was misunderstood and misrepresented.

5. As all the examining physicians either gave their services, or received a very small remuneration, it seems to us that appreciation of their services would be more fitting than censure, and that a continued unjust censure of the doctors by people ignorant of the facts, will make the doctors unwilling to serve in this capacity.

*Resolved*, That copies of the above be sent to the Surgeon-General, the Adjutant General, and the Boston daily papers.

LYMAN S. HAPGOOD, *Secretary.*

### Correspondence.

#### THE DOCTOR AND THE DRAFT.

Cambridge, Oct. 13, 1917.

Mr. Editor:

Much criticism, directed chiefly against draft physicians of Boston, has appeared recently in the daily press. If we can believe the stories of carelessness on the part of the examining physicians of the selection boards, medical standards have indeed reached a low level and such practitioners constitute a positive danger to the community. The medical journals have been wisely silent. The general public, guided by the daily newspaper, is convinced that the work of draft examinations has been poorly done.

In a recent editorial entitled "Shameful Conduct," a leading Boston paper violently attacks the examiners of the Selection Boards. It is unfortunate that this newspaper, which is generally regarded as eminently fair, should publish so caustic an article, unkindful of the rules and conditions under which the physical tests have been made. To the author of the above-named editorial it may be a matter of interest to know that, in accordance with the draft regulations, many men who never even appeared for examination were sent to the mobilization camp. As an instance: a man claiming to be a resident alien whose examination is postponed in accordance

with Section 16 of the Draft Rules, fails to file his affidavit in support of his claim for exemption. In due time he must be certified to the District Board and forwarded to Ayer regardless of his physical condition.

In the course of the examinations, efforts were made by some of the registrants to deceive the doctor, and he is warned in the rules to protect both the government and himself against these attempts at deception. All doubtful cases must, by order of the Provost Marshal General, be resolved in favor of the government, and all such men are held for military service. It is perfectly clear that the army surgeons, with the facilities for observation in the regimental infirmary or base hospital, possess much better opportunities than the civilian physician to sift out doubtful cases. Moreover, urinalysis, sputa and Wassermann tests, not included in the routine preliminary examinations, are used extensively at the mobilization camp.

The editorial referred to above speaks of the grave danger in the selection and certification of men afflicted with tuberculosis and venereal disease. This is admittedly true. But there are stages of tubercular infection in which it is impossible, in but one examination, to determine an absolute diagnosis. Even with the advantages of bacteriological tests and day to day examinations, there are now segregated at the camp many men of whose condition the army surgeons are still undecided. And, according to the rules governing physical examinations, there is one common and most serious social disease which is not disqualifying. This disease is referred to by Dr. Osler as possible of "permanent damage to the individual himself and still more to the 'grimy troop' which follow in its train." Certain complications of this disease, however, are causes for rejection. But a man's physical condition may vary from week to week, or even from day to day, and it should be remembered that many men were not sent to camp until a month or more had elapsed from date of examination, so that recent contractions of disease and the complications in existing conditions should be considered. These are, undoubtedly, some of the reasons why the War Department ordered each local board to certify 10% over its quota.

The editorial states that "it is ludicrous that physicians should have approved epileptics." Even a layman is aware that in this functional nervous disease a patient may often exhibit absolutely no organic disorder, and, if sensitive about mentioning his trouble, might be accepted by any examiner until the test of time and observation can establish the true diagnosis.

The percentage of rejections, therefore, is no criterion to judge the degree of skill or care exercised by the examining physicians. It happens that the writer is the medical member of a selection board which, up to date, has had no rejections of any of its accepted men. This means that we have been lucky, and nothing more, for it is quite possible that some of our selected men, now drilling in Ayer, may under intensive military training, suffer with broken arches or fall to the ground in the diagnostic convulsive seizure of epilepsy.

The doctors whom the President has appointed to the local boards are, mostly, mature men of at least some standing in their respective communities. They and their assistants have sacrificed their civil practice and income and given freely of their time in the great work of the selective draft. In their attempt to protect the government and to follow the rules laid down by the Surgeon General, they have subjected themselves to much severe criticism which is entirely undeserved.

HENRY O. LACEY, M.D.,  
Draft Selection Board, Cambridge, Division I.

## VERBUM SAPIENTIBUS.

Mr. Editor: Boston, Oct. 12, 1917.

Your readers will do well to be on their guard against the engaging manners and plausible statements of a medical gentleman, recently a resident of Los Angeles, who professes an intimate knowledge of eminent medical men, well known here twenty-five and more years ago, and who usually ends an entertaining conversation with an appeal for a small loan of money. "A word to the wise is sufficient."

Yours truly  
VINCENT Y. BOWDITCH.

## SOCIETY NOTICES.

**THE HARVEY SOCIETY.**—The first lecture of the series will be held at the New York Academy of Medicine, 17 West Forty-Third Street, on Saturday evening, October 27th, 1917, at 8.30 p.m., by Prof. W. T. Porter, of Harvard. Subject: "Shock: Observations at the Front."

**MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.**—The annual meeting will be held at the Boston Medical Library at 5.30 p.m., on Thursday, Oct. 25, 1917.

The Council will meet at the same place at 5.15 p.m. It includes the following officers: President, Vice-President, Treasurer, Secretary and the following Trustees: Drs. H. Gage, F. B. Lund, F. W. Taylor, F. G. Balch, G. G. Sears, E. C. Streeter, S. J. Mixer, B. Vincent and J. Bryant.

**R. M. GREEN, M.D., Secretary.**  
**NORFOLK DISTRICT MEDICAL SOCIETY.**—A stated meeting of the Society will be held at the Roxbury Masonic Temple, 171 Warren Street, Tuesday, Oct. 30, at 8 p.m. sharp.

**Business**  
Communication: A Symposium on Venereal Prophylaxis.

**Social Aspect,** Bishop William Lawrence.  
**Medical Aspect,** C. Morton Smith, M.D.  
The Censors will meet November 8, at 2 p.m., for the examination of candidates.

**BRADFORD KENT, M.D., Secretary.**  
**SUFFOLK DISTRICT MEDICAL SOCIETY.**—A stated meeting of the Society will be held on Wednesday, Oct. 24, 1917, at the Boston Medical Library, 8 The Fenway, at 8.15 p.m.

**Business:** Election of Nominating and Auditing Committees.

**Paper:** "Repeated Caesarean Section," Dr. J. Whitridge Williams, Baltimore.

**Discussion** by Drs. Edward Reynolds, F. S. Newell, H. T. Swain and N. B. Mason

**Refreshments** after the meeting  
**GILBERT SMITH, M.D., Secretary.**

## CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, Nov. 1, 1917, at 4 p.m.

Candidates, who must be residents of Suffolk District or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply from 2 to 4 p.m. to  
GEORGE GILBERT SMITH, Secretary,  
99 Commonwealth Avenue.

## RECENT DEATHS.

**FRANK H. GARDNER, M.D.,** of Portland, Me., died at his home in that city on October 7. He was born in 1854 and graduated from Bowdoin Medical College and Maine Medical School. He began practice in Washburn, Maine, later moved to Harpswell, Maine, and about twenty-one years ago he removed to Portland where he remained in practice until about two years ago. He is survived by his widow and one daughter.